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FEB 10 1941

Strikes Delay Defense

When the United States was at war in 1917-18, strikes by labor were one of the causes of the delay in equipping the army sent over seas.

Our soldiers bore the hardship of the trenches and faced death at the front. The money they received was army pay and often there was no work to be found on their return.

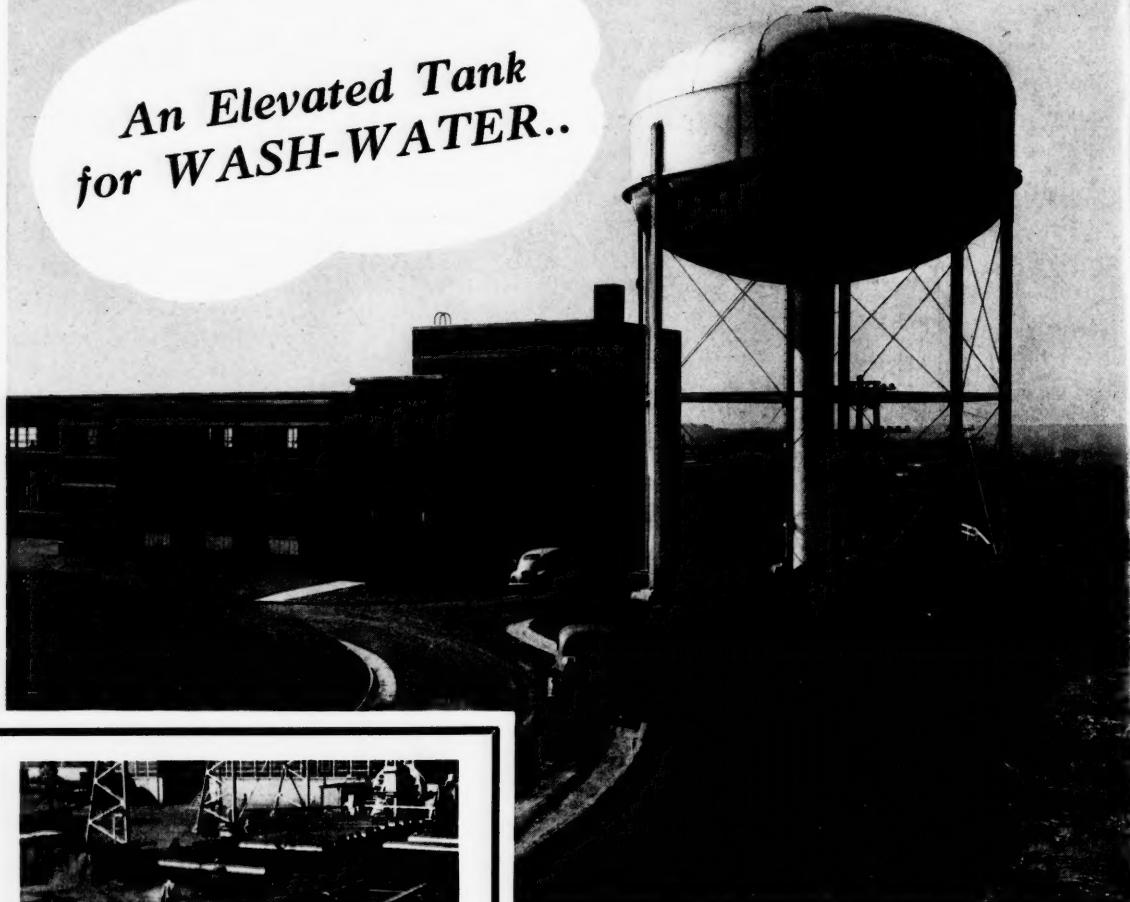
We are not at war, but men are being called to camps and speed in preparing defense is essential in the national emergency.

Is labor listening to alien voices in the numerous strikes of the present? Surely at a time like this differences about pay and hours can be settled over a council table, and it would seem that membership in a union should not be the principal qualification for a man to be permitted to work on defense.

While rival unions quarrel over their supposed right to dominate a plant, not only employers but the public generally regard such procedure with disfavor, if not disgust. Labor will be well advised if it alters its course before open resentment and more stringent measures supplant patience.

FEBRUARY 1941

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MANUFACTURERS RECORD

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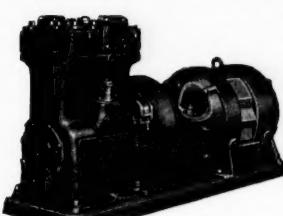
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WHY TALK ABOUT ENGLAND'S WAR AIMS

Democracy is debating grave issues. Congress hesitates before giving the President the complete power the lease-lend bill proposes. Committees of the Senate and House have heard at least one prominent witness express indifference as to whether England or Germany wins the war, and have listened to repeated demands for a declaration of "England's war aims."

Full debate and Committee hearings in considering a measure of such tremendous importance not only to the United States, but to the world and its future peace, are necessary and in accordance with the proven principles of Democracy.

Confusion of thought as to the way is to be expected at such a time, but there should be clearness of vision about the objective.

Whether the money should be loaned to England to buy what she needs of us, whether we should give her outright as much as we can of the war equipment necessary for victory while gaining us time for our defense, or whether the supreme power of the lease-lend bill be granted the President, the main point, the vital point of quick and increasing help for England should not be lost sight of for a moment.

England is fighting for her life, and it is obvious her present necessity is to defeat Germany. If the defeat of England means nothing to us; if the spread of totalitarian autocracy means nothing in the life of America, then the war means nothing to us except to look out for our own safety.

If, however, England's destruction constitutes a menace to democracy as we believe it certainly does, then England's preservation is very much a matter of concern to the United States, and it seems idle to persist in asking what are "England's war aims."

As this is written the press carries the news that a large number of Nazi agents have recently gone into Mexico for the purpose of trying to get into the United States to stir up discontent here, and sabotage American defense industries. Because of our own indifference there has been a great increase in subversive propaganda spread throughout the country and even taught in our schools and colleges in recent years. Aliens enjoying advantages never dreamed of before have formed a chorus of malcontents. Communists, Fascists and advocates of strange isms, who would not be happy in Utopia, have been vociferous in urging radical changes in the American way of life. And the pity of it is some Americans have helped the mischievous work.

If England goes down, it is well to be mindful that more than preliminaries have been started for an assault upon our freedom. Numbers of men in public office having Fascist or Communistic connections have been permitted to hold their places, and we have gone on regardless, but we need not flatter ourselves that the richness of the prize America would bring the dictators is overlooked. There is no doubt they have been well informed.

The mainstay of the nation in the present emer-

gency is that the tradition which opposed tyranny in the past is alive in the hearts of a great majority of Americans. It is the purpose of this majority, irrespective of those who express themselves in town meetings and before Congress as opposed to anything that "will pull England's chestnuts out of the fire" to give all aid to the brave people who in their "blood and tears and sweat" are standing as a bulwark in the path of madmen who want to rule the world.

Speed and more speed in rendering every aid to England must be the order of the day. England does not want our men; she has said so. Take her at her word and give her outright if need be everything not essential for our own defense. If we hurry we won't be too late and we can give her a lot. What is the use of talking about pay for it, of talking about debts from the last war, or talking about "England's war aims" when our own freedom and the freedom of mankind is at stake? It is a digression from the major objective and a waste of precious time.

A New Frontier

A large deposit of serpentine rock from which magnesium is obtained is described in this issue by Dr. A. S. Furcrom, Geologist of Georgia. It is located on the Savannah River not far from Augusta, and while at the present time the extent of the deposit is not known, it is reported to be of large dimensions.

Magnesium occupies a vital part in the industrial economy of today. It is widely used as an alloy in the manufacture of aluminum and for other products in which it is the basic material. The article points out there is not far from the serpentine deposit a deposit of bauxite which is available in quantity. From the information supplied it appears another frontier opens in Southeastern Georgia for a variety of industries that will mean new wealth to the section, as well as to the country as a whole.

Anti-Strike Legislation

The *Atlanta Constitution* expresses the opinion "unless organized labor quickly abandons its approval of strikes that sabotage the national defense effort, this country is apt to find itself actually at war, with the soldiers of the factories subject to equally drastic regulations as the soldiers in the armies."

The Committee on Manufacture of the Chamber of Commerce of the United States is on record in "opposition to Federal anti-strike legislation as a means of preventing interruptions to work on national defense projects."

The Committee gives among its conclusions, while recognizing that public policy is opposed to interference with defense, that "the interrelation of businesses makes it next to impossible to draw a line between defense and non-defense industries." Also that "The National Chamber believes that anti-strike laws will prove ineffective and will deny fundamental rights to our citizens. The Chamber believes that public interest will be served best by voluntary cooperation."

All of which is important, but does not meet situations in which investigation has uncovered alien activities as the cause of strikes in aircraft and other industrial plants working on defense orders. The melting pot of America has brought to the surface at other times the scum of other lands that never adopted a cooperative attitude.

A recent article in *Current History and Forum*, telling of the great increases in consulate staffs of Germany in America, and the establishment of consulate offices here where none had been before, made the direct charge they are hot beds of Nazi propaganda and effort.

The question may become a bigger one than can be dealt with by negotiations between employer and employee.

Stop Needless Expense

The Treasury Department asked recently that the Federal debt limit be raised to \$65,000,000,000, and later news says \$3,000,000,000 more should be added.

Appropriations for defense made so far by Congress probably will bring total obligations close to the figure named. But what about economy in other directions? Figures given out the other day showed something like \$13,000,000,000 having been spent since 1935 for relief and welfare work by a philanthropic government. How can the pace be kept up, and what will be the final limit?

Defense is necessary and we should make it complete, but this doesn't mean we should close our eyes to the wasteful extravagance of schemes that have encouraged loafers and worked mainly to give jobs to tens of thousands of jobholders.

Increased taxes will claim the attention of Congress soon. The 1940 bill is high, but it is bound to go higher. More pay is being asked by workers

and government says prices must stay down. To keep on spending and spending for needless things is never justifiable, but under present circumstances is definitely damaging. Our economic future requires thought and action now.

President Moulton of the Brookings Institution is of the opinion that if national income is raised to \$85,000,000,000 per year for the next three years, the defense program can be carried out without increase in the public debt, and without unbearable taxes. Furthermore, that economic disaster following the war may be avoided by sound financing now, and this includes using an increased national income to balance the national budget.

The *Wall Street Journal* says "we have been rightly warned that in doing the job that lies before us we cannot have 'business as usual.' But neither can we have anything else as usual." All of which emphasizes the necessity of cutting to the bone wasteful expenditures by government.

The Days After Peace

Despite the hurry and confusion of defense preparation, it is of great importance to study constantly how best we may prepare to ease the shock of after war conditions. We have had prolonged experience of inflation and deflation following the last war. From present indications the present conflict will be long and with resulting cost beyond anything in previous history.

The waste going on in Europe from the support of armies of millions of men withdrawn from normal pursuits; the destruction of property on land and sea, and the destruction of lives are piling up a cost for the countries engaged so vast as to be staggering. How are we to meet the ensuing competition of a world hungry for peace and trade by which to rehabilitate itself?

Energy first given to defense is as it should be, but what of problems like those we faced last time? Over-expanded plant capacity, millions of discharged soldiers looking for jobs, followed by a surge of seeming prosperity that lasted for a little time and then the crash. The upward struggle since should have taught us many things. We can't hoist ourselves by our bootstraps. We tried it before and it failed. Large scale spending to get the country out of a hole won't work.

The program must be encouragement to private business—not discouragement. The development of goods and markets, the supplying of human needs which are so vast in this greatest of all mar-

kets. Productive enterprise will be our salvation with reasonable relations between capital and labor having each side safeguarded by law in their negotiations one with another, but not as dictated by the present Labor Relations Act which of all legislation is most unfair.

Forty-eight principalities in this country dealing one with another without barriers of any kind should be able to solve the problems of supply and demand following even the greatest of all wars.

E. F. Connely, President of the Investment Bankers Association, asks whether following the present emergency corporation securities will be held predominantly by private investors or by government. Demand for new capital for the defense program and the great amount of capital lying idle would seem to answer the question under normal conditions. But in calling attention to the dangers of the situation, Mr. Connely says business men "may yield to the siren song of easy and effortless financing through Washington channels, and may themselves bring pressure to bear for an extension of those financing facilities beyond their present limits."

The *Wheeling Intelligencer* in referring to this says: "It would be ironical, indeed, if private enterprise itself would encourage a development leading to the destruction of the private enterprise system."

The discouragement, and in some instances the destruction of private enterprise, has been the result already seen from increasing government competition.

The *Intelligencer* adds: "Whoever wins the war, the day of peace will come. When it comes, this country and all others will face the necessity of settling down to a peace-time basis. England, Germany, Greece, Italy—every country actually engaged in fighting will have vast armies of men to restore to peace-time activity, a war-gear industry to utilize. In our own country, there is every present indication we will have a war industry expanded far beyond actual requirements. Our peace-time industry will have been disrupted to a serious extent, perhaps far more than necessary. * * * We will have to transfer millions of workers and vast industrial plants back to a peace-time basis of operation, or encounter an unemployment problem dwarfing anything we have met thus far. As an additional problem, there will be the staggering government debt to think about.

"Will we, in the traditional American way, roll up our sleeves, go to work as individuals in a system of free enterprise and permit the law of economics to work?"

South's Advantages

Recognized—by

South's Advantages Definitely Assure Its Industrial Growth



by
ALFRED KAUFFMANN, President
Link-Belt Company, Chicago

We feel that as the trend of so many industries is definitely southward, the South today presents greater opportunities for industrial expansion in the sale of our products than in certain other sections of the country; and we are expanding our facilities and service to take care of not only present requirements, but this anticipated future growth as well.

Link-Belt Company has for a great many years definitely indicated its faith in the industrial growth of the South by maintaining branch offices throughout the southern territory, with large stocks of material in distributors' warehouses, and later the acquisition of manufacturing plants and warehouses of its own—at Atlanta, Ga., and Dallas, Tex.

It has been evident to us for a long time that the many natural advantages of the South definitely assured its industrial growth. Among these natural advantages are the South's mineral and agricultural resources, climate, low tax rate, predominance of American born labor, excellent rail and water transportation, and good paved roads.

The monopoly which the South holds on numerous

chemicals, such as sulphur, phosphate rock, fuller's earth, carbon black and turpentine, assures continual expansion in these industries, and as they do expand their facilities they will be needing more and more elevating and conveying equipment, screens, dryers, positive drives, Friction Fighter bearings, and the many other things that our company can furnish them.

We are not unmindful that pulp and paper mills have in the last few years located in the South, and are making pulp from southern pine; that the chemical industry is looking to the South as an ideal location for its expanding facilities; and that the South already has many textile mills, located close to the source of their raw materials.

Harold Hoefman, our Manager at the Atlanta plant, says—"We here in Atlanta firmly believe that the industrial expansion which we have already seen in the South is only the beginning, and that in the next few years it will see an industrial growth which has been unequaled by any other section of the country."

Ed. Wendell, Manager at Dallas, where we have but recently built a new plant and warehouse with manufacturing facilities, holds similar views with reference to industrial expansion in the Great Southwest.

With these views of the situation, it seems to me that our judgment of what the South can do for us, and we for the South, has been pretty good.

South's Industrial Development Is Natural And Obvious

I am one of that growing number of Northerners who believe that the South is rapidly coming into its own. By that, I mean that the South will take its place as a manufacturing section and thereby do away with the concentration of industrial localities, such as we now have here in the North. It would seem that this is a development that just had to come, and is perfectly natural and obvious.

The Industrial region, such as New England, owed its industrial start to the fact that there was cheap power to be obtained from the waterways in that section and its fairly accessible location for transportation, but even with the hardships of the severe winters and all the disadvantages, it still prevailed as an industrial center, because of the cheap power. The same thing is true with most other industrial communities.

The second reason why industrial communities start up is usually because of the availability of raw materials.

Today, availability and the price of power runs pretty uniform in the North and in the South—as a matter of

d-by leading industrialists



by

A. L. FREEDLANDER, *President*
The Dayton Rubber Manufacturing Company

fact, in some places, the South has the advantage over certain places in the North. In any event, there is no question, when a locality is being considered, as to whether you are going to get power—that is assured, and, of course, if it is within the T.V.A. region, there are still further advantages.

When it comes to transportation, it is hard to get around the fact that states such as North Carolina have the finest set of roads in the United States. South Carolina is coming along rapidly too, and other states, as well. Therefore, the advantages that the North possessed, have, in the light of developments, been swept away.

When it comes to the advantages that the South has, such as climatic conditions, labor, availability, these then become increasingly important when a decision is made as to whether to locate in the North or in the South; and further, as the South becomes more industrialized, naturally the demand for the products of manufacture increase as the population grows, so that additional plants are required to keep these wants satisfied. Therefore, once the ball is started by overcoming the basic objections, nothing can stop the rapidly accelerating industrial growth in the southern part of the United States. This, coupled with such wonderful roads, ever

shortening distances in the years to come—and not so very many years at that—one will not think of the North and the South as being a widely separated section of the country, but it will be so welded together and industrially intermixed that it will make for much greater possibilities than we have ever conceived.

In The South Is A New Frontier For Business

The faith of the Continental directors in the future of the southern market is such that when they recently adopted a \$25,000,000 plant expansion and betterment program, some of the first expenditures authorized were for the improvement and enlargement of southern plants.

Projects already authorized under this program provide for tripling the capacity of the Baltimore Crown Cap plant, erecting a new plant in St. Louis with sufficient space to ultimately double the capacity of the two plants which it replaces, providing an entirely new



by
J. F. HARTLIEB, *President*
Continental Can Company, Inc.

three-story plant at Harvey, La., and adding further warehouse facilities and two complete lines of can-making machinery to the Tampa plant which itself is almost new.

South's Advantages Recognized by leading industrialists (continued)

The importance of the South to Continental is expected to become even greater in the future. The principal reason for this is the phenomenal development of the New South through increasing population, industrial expansion and the development of new and better facilities for power production, transportation and communication. Since our company is essentially a "service organization" to other businesses and industries, we are continually expanding and improving our facilities to meet new and increased demands as they appear.

Another reason for the growing importance of the South to us lies in the opportunity it affords for the development of new products for canning. A typical example of the way this factor works to create new business is the rise of the canned citrus fruit industry. A method of packing citrus products in cans successfully was discovered in 1921. These new foods have since become so popular that today the South is packing more than 13,000,000 cases of them annually. This is but one example. We may be sure that the future will bring others.

At the present time, approximately one-quarter of our factories in number and one-fifth of all our employees are located in various Southern cities, and our southern sales district is one of the most important we have.

We have manufacturing plants at Jacksonville and Tampa, Florida; Harvey and New Orleans, Louisiana; Baltimore and Hurlock, Maryland; Kansas City and St. Louis, Missouri; Memphis, Tennessee; Houston, Texas; Bedford and Roanoke, Virginia; and two at Wheeling, West Virginia. Some of the plants produce tin containers for packing fruits and vegetables, and others produce "general line" cans for packaging meats, milk, coffee, beer, shortening, and an infinite variety of industrial products such as paint and motor oil. In addition, there is a plant at Nashville, Tennessee, for producing corrugated fiber cartons, one at Springfield, Missouri for servicing machinery for sealing the cans, and one at Baltimore for making crown bottle caps.

To a degree, Continental is a southern company, in the sense that a number of southern can manufacturing companies have merged with it in the past few years, and from its earliest beginnings it has had a manufacturing and sales organization in Southern territory.

The productive soil and favorable growing climate of the South make this section of the country a most important producer of food, particularly of some kinds which are packed in tin containers in enormous quantities. The numerous industries of the South are also the

producers of a great variety of products which are packaged in tin containers of various kinds. It is inevitable, therefore, that Continental Can Co., Inc., which produces tin containers for these purposes, must regard the South as a very important section.

With fourteen plants in southern cities, employing some 3,500 people, our company takes pride in its efforts to meet the existing requirements of the South for its services, and it is prepared to increase and augment those services as further needs require. We look forward confidently to further improvement in the South's economic position and feel that here business has a new frontier for the expansion of existing markets and the cultivation of new ones.

Outlook In The South Is Ever More Promising



by
WALTER F. VIEH, President
TelAutograph Corporation

Until the past few years our company has found it necessary to pass up such markets for our service as may have existed in the South. The necessity arose out of the fact that what we had to offer is in the category of a service rather than a product to sell. It is our practice to enter into a service contract with a subscriber, which contract contemplates that we shall furnish an

(Continued on page 52)

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XUM

Magnesium and Magnesium Salts in Columbia County, Georgia

New Source of Magnesium with Nearby Deposits of Bauxite Offers Opportunities for Airplane and other Manufacturing

BY

Dr. A. S. Fulcrum,
Geologist
Division of Mines, Mining and Geology
Atlanta, Ga.

A LARGE deposit of serpentine, suitable to the preparation of magnesium and magnesium salts, was mapped in Columbia County, Georgia, upon the new geologic map of Georgia which was published in 1939. Recently, chemical investigations of this deposit which were carried on in the laboratory of the State Division of Mines indicated that this material forms a large resource of readily available magnesium compounds.

The rock consists almost entirely of serpentine. Serpentine, as a mineral, is rather common in the Crystalline belt of rocks which extends east of the young Appalachians from Alabama to New England. In Georgia, this Crystalline belt, one hundred or more miles in width, contains enormous deposits of serpentine but thus far no other deposit has been found which is so pure or so extensive.

Throughout this belt, serpentine is commonly associated with talc and chlorite. Deposits of this type have been derived by hydro-thermal alteration, or through some other type of metamorphism, from intrusions of ultra basic rocks which range in their original condition from practically straight dunites into the less basic pyroxenites and possibly to hornblende gneisses.

The deposit in question occurs on the southwest side of the Savannah River, north of Greenbrier Creek about sixteen miles northwest of Augusta, Ga. The intrusion is several miles in length, extending roughly east and west, and is surrounded by the enclosing Carolina gneiss. There is very little soil over the serpentine rock and the area underlaid by this material has been so recognized for years because it is of no value in agriculture. The rock occupies a low ridge. Its total available tonnage is, at present, unknown although without doubt it is very large. Some further investigation, particularly coring, is recommended for the deposit in order to sufficiently prove its extent and depth and to certainly locate the best and purest serpentine.

In the past, the source of magnesium has been largely magnesite. Magnesite, however, is not an abundant mineral in the United States. It is mined in California and Washington but our deposits of this mineral are inadequate. In foreign countries, large deposits of magnesite are reported from Russia, and Greece and

British India are important producing countries. Japan has a deposit of magnesite in Manchukuo. It is obvious that our supplies of magnesite are inadequate for future needs, and in present world conditions it is not going to be possible to successfully import magnesite.

The significant feature of this serpentine deposit is that all the magnesia present can be dissolved easily by a treatment with acid. Also, the serpentine carries a variable amount of free magnesite. Analyses made in our laboratory of various samples indicate a magnesia content of from 36 to 38 per cent. Experiments carried on upon a number of other serpentines in the State reveal that, for the most part, these deposits carry more or less talc as well as other minerals. Talc does not respond to simple acid treatment as does serpentine, thus the amount of available magnesia is cut down for such deposits.

The deposit in Columbia County can supply raw material for the manufacture of magnesium sulfate, magnesium chloride, magnesia, and other compounds for which industry has a demand. It is believed that metallic magnesium can be prepared also, both economically and competitively, to meet the demand of our armament program.

Magnesium, a metal far lighter than aluminum, is used as an alloy in aluminum in the manufacture of metallic parts of airplanes. It is significant that this deposit lies but a short distance from the good bauxite deposits of Twiggs, Wilkeson, Baldwin and Washington counties; thus, we have the two essential metals necessary for air defense located near each other in Central and Eastern Georgia.

Sulphuric acid is necessary for the production of these magnesium salts from the serpentine. In numerous places in the Crystalline belt of Georgia, such as Paulding County, Lumpkin County, etc., there are large pyrite deposits. Deposits of this type, such as the pyrite deposits of the Little Bob Mine in Paulding County and the Chestatee Mine in Lumpkin County, were extensively mined during the first World War as a source of sulphuric acid. There has been a natural renewal of interest in the large pyrite deposits within the last several months. Here again, not far from the deposits of the ore of aluminum and the ore of magnesium, is the

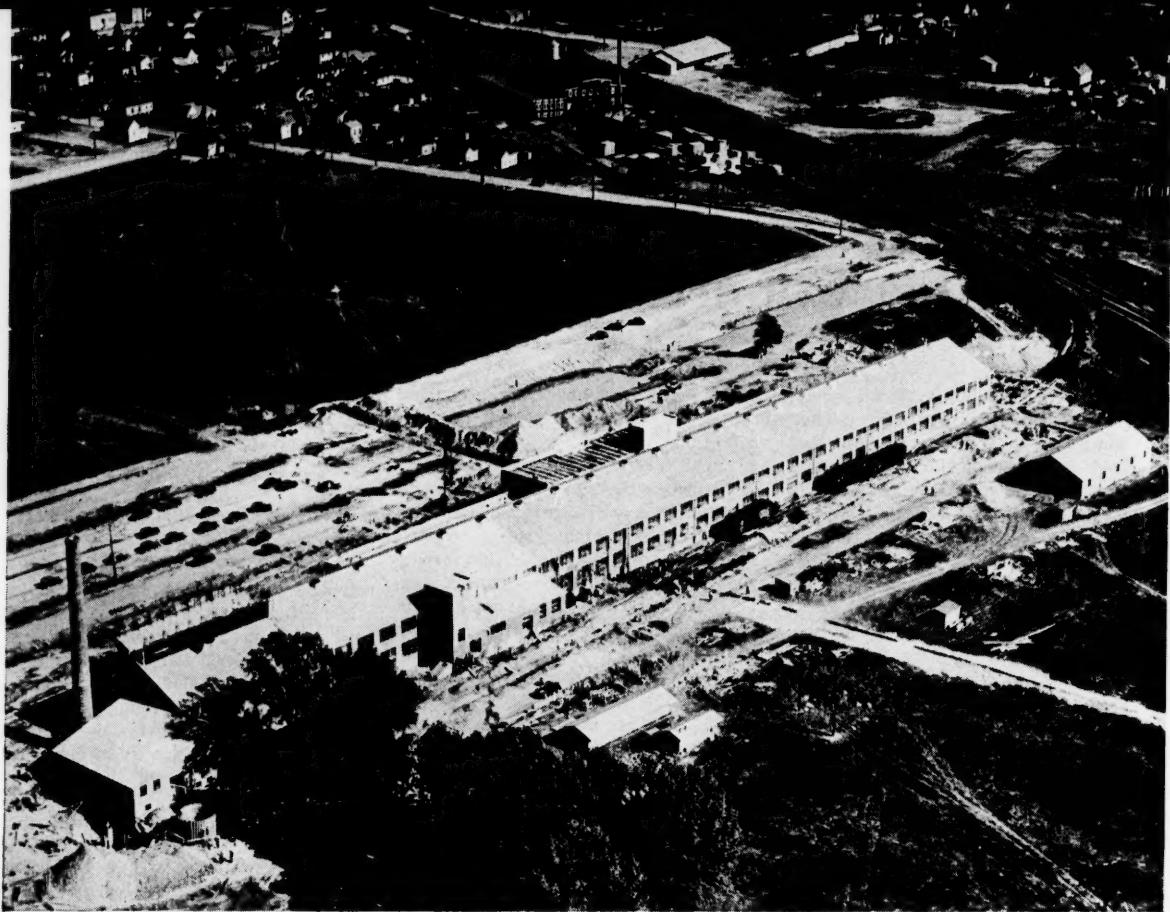
potential source of sulphuric acid.

More than this, pure sulphuric acid need not be used in converting the magnesium silicate of the serpentine to a soluble form. Spent acid, that is, used acid which is sulphuric acid that contains water, is entirely suitable for the process. Now, it so happens that where sulphuric acid is used as a dehydrating agent in the manufacture of explosives, it can be used again upon the serpentine; thus, it is obvious that this association of bauxite, serpentine, and pyrite could lead to the development of sulphuric acid plants; nitration plants; the development of our bauxite deposits; the production of magnesium salts, metallic magnesium and magnesia;—aluminum alloys for our airplane industry.

It is interesting to observe that this deposit also contains, as a readily separable impurity, from two to five per cent of a chrominous mineral which should find a ready market. Chromite, so necessary in the manufacture of steel for high-speed tools, is classed as an important strategic mineral which is absolutely necessary in times of war. Our workable domestic deposits of this ore are small and rare. As a by-product, this chromite enhances the value of the deposit and improves the general economic aspect involved in the utilization of the material.

This serpentine deposit could supply the demand for agricultural magnesia in the southeastern states. Consumption of this type of material for this use is growing steadily. It is also possible, of course, that the serpentine may find application as a ceramic raw material.

The above discussion illustrates the type of work which we are undertaking to do here in Georgia's Division of Mines. In addition to the standardized types of geologic work necessary to all surveys; to publication and consulting services, we find it necessary in order to develop our mineral resources to recombine ideas and to revalue minerals in the light of recent modern development and economic necessity.



WORLD'S LARGEST FLUORESCENT LAMP WORKS AT JACKSON, MISSISSIPPI

THE world's largest fluorescent lamp works, General Electric Company's Jackson Lamp Works and Glass Works, will be formally dedicated February 21st.

The dedication, fittingly, comes at a time when factory wheels through the nation are turning faster and faster for defense and there is a sharper need than ever before for increased lighting in industry.

The new lamp plant, located in the cotton growing region of the deep South, will turn out from 10,000 to 20,000 lamps per shift, and the new glass works will produce the tubing for the fluorescent lamps.

These are the filamentless bulbs which, in the two years since their introduction,

have met with sensational demand on the part of industry, commerce and even homes. Because varieties of these Mazda F Lamps give the closest approach to daylight ever yet realized in artificial lighting and are a cool economical source of illumination, it is pointed out they will be increasingly in demand by factories as their workmen concentrate their eyes on work for defense.

The Jackson Lamp Works, with Z. G. Taylor formerly of Cleveland as manager, is the second to be opened by General Electric within two years for the manufacture of fluorescent lamps. The first fluorescent lamp works is at Nela Park, Cleveland.

*Dedication Comes at
Time When Factories
Need More Light
As Defense Program
Gets Under Way*

The Jackson Glass Works is being operated in conjunction with the new Lamp Works on the same property. J. F. Kebe is manager of the glass works and E. A. Howard, assistant manager.

Situated in the southwest end of Jackson, on U. S. Route No. 80, the new factory is an inspiration to visit. The building is a two-story brick, 800 feet long with 150,000 square feet of manufacturing floor space.

Air conditioning both for winter and summer makes the office portion of the building an ideal place in which to work.

Five hundred young women working in two shifts in the factory themselves enjoy the benefits of abundant fluorescent

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lighting. The building is an example throughout of an A-1 Mazda F lamp installation. Because the work is clean the girls can dress as they please and in the clear fluorescent lighting the colors of their dresses stand out brightly.

Here they dexterously handle the new tubular lamps in all stages of manufacture and in sizes ranging from midgets nine inches long to big fellows five feet in length. All of the lamps are white until lighted. Then the ultraviolet rays within the bulbs strike the fluorescent powders and reveal the colors. Composition of the powder is of course controlled to give the various hues.

Plant operations include all the stages in the manufacture of the bulbs, from the mixing of the materials for the glass to the inspection of the final glowing tubular lamps, in all their beauty of color ranging from white and daylight to rich shades of the rainbow.

Equipment has been provided for manufacture of 10,000 to 20,000 lamps per shift, the quantity depending upon the size of the lamps being produced. The Jackson plant is equipped to process lamps varying in length from 18 inches to 60 inches.

Tentative estimates place production of the Jackson Lamp Works at six million lamps per year.

G. E. officials selected Jackson as the plant location after a lengthy period of study and investigation when widespread public acceptance of the new fluorescent type lamps made expansion of operations necessary.



Above—Operators testing fluorescent lamps on the seasoning racks. Below—Glass tubing for fluorescent lamps being inspected at the Jackson Glass Works of General Electric.

Commenting on Southern labor after two months of operations at Jackson, Z. G. Taylor, manager of the plant, says:

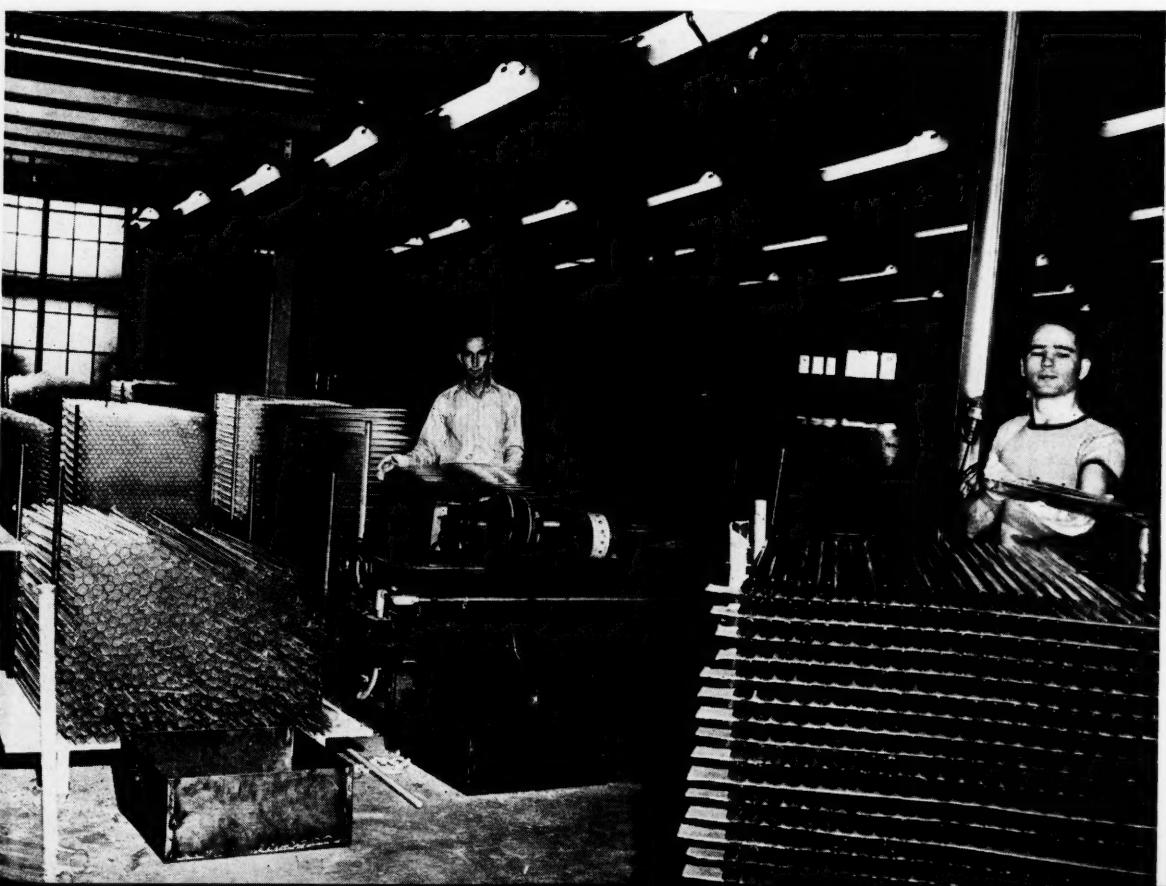
"As a whole, both male and female labor has not only shown an interest in this new work, but have shown a particular interest in learning the work and have adapted themselves to training in a most

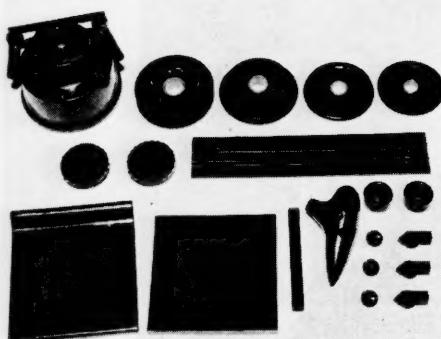
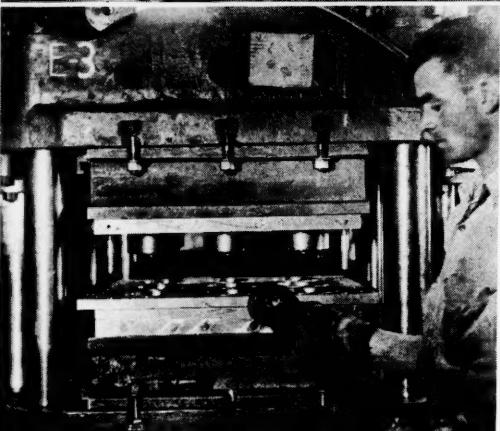
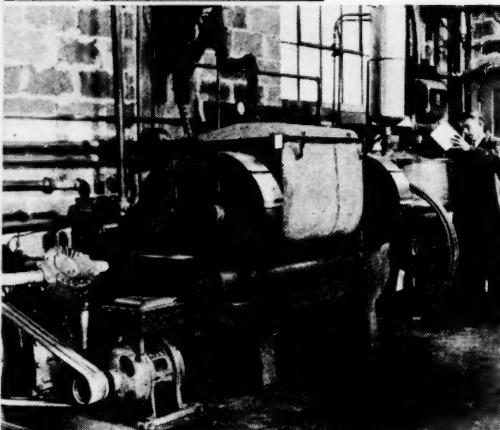
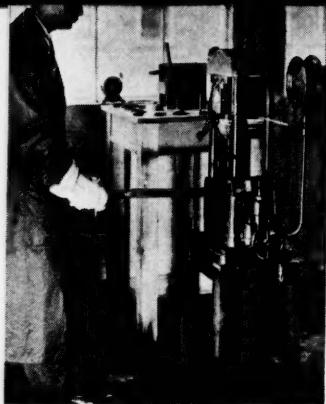
efficient manner.

"To date, we have made progress equivalent to or better than that which we would normally consider entirely satisfactory. We would not hesitate to recommend to other industries, based on experience to date, the efficient, satisfactory, male and female labor available in the city of Jackson and the Jackson district.

"In regards to male labor, we require a diversified classification of labor, ranging from that of experienced toolmakers

(Continued on page 50)





Top—The author, Dr. Fritz Rosenthal, at the laboratory press. Top center—Pilot plant unit for production of cottonseed hull compound comprises a resin kettle and mixer provided with vacuum pump. Lower center—Commercial molding on the production press at the plant of National Plastics, Inc. Bottom—Articles molded from cottonseed hull plastics.

Cottonseed Hull Plastics Developed in the South For the South

BY

Dr. Fritz Rosenthal
Plastics Technologist
Agricultural Experiment Station
University of Tennessee

THE evolution of plastics within the past ten years is so well known that it need not be emphasized here. There are misapprehensions, however, as to why and where plastic materials are produced and consumed. People have heard reports of frantic efforts in certain countries to create "ersatz," or substitutes, that will make those countries independent of the raw-material supply from other parts of the world.

The assumption is heard again and again that plastics are "ersatz" materials. That assumption is wrong. America is blessed with an abundance of raw materials, hence, has no great need for substitute materials. There always is, however, the urge to create new things. This is twofold: first, to utilize existing raw materials for profitable markets; and, second, to develop materials having characteristics different from available commodities, and thereby fulfilling the constant characteristically American demand for better and still better things. These are the fundamental causes leading to research efforts, and hence to progress—and the advance of plastics has followed the same avenue in its development.

Where are plastic materials used? In a rather superficial way, we may discern two broad fields, the decorative and the technical. The requirements for these fields of application differ greatly. A material destined for decorative purposes should have eye appeal, unlimited color possibilities, and a pleasing surface. In the technical field these optical requirements are a minor factor. But the material is exposed to much rougher treatment; and there are exacting demands as to impact strength, modulus of rupture, and, in many cases, electrical properties. A material which does not meet the re-

quirements of its proposed use has no chance of success in this competitive world.

Naturally, cottonseed-hull plastics were confronted with this problem as soon as this new development grew beyond the laboratory stage. Before discussing how and why cottonseed-hull plastic material gained its place in a commercial application, let us recall briefly what led to this research development. Cottonseed hulls are a Southern material, available annually in excess of one million tons. The hulls are accumulated in cotton-oil mills—a significant fact from the economic standpoint—while certain other agricultural products are available in small quantities throughout the farming areas, and have to be hauled to concentration points. Cottonseed hulls are used as roughage for cattle feed, and at times are utilized as fuel by the oil mills. It has been felt for a long time that more satisfactory uses for cottonseed hulls should be found, and many efforts have been made to that end by research institutions.

The University of Tennessee, under a Bankhead-Jones fund project, has investigated the possibilities of cottonseed hulls in the plastics field. The program has been carried out by closest cooperation between plastics technologist, engineer, and commercial custom-molder. The result of this team work is the development of a molding compound, consisting of processed cottonseed hulls impregnated with a phenolic binder in a simple mixing operation. When this compound is submitted to the influence of heat and pressure it flows for a few seconds, and undergoes a quick chemical reaction which renders it permanently insoluble and infusible. Materials of this type have been known since 1910, when the first patent was granted to the inventor, Dr. Leo Baekeland, who had a spectacular success with his compound, well known as Bakelite. A great variety of materials have been incorporated in composition of Bakelite type, woodflour being the most widely used commodity. The layman's justifiable question now is: "Why use cottonseed hulls?"

There are at least three good reasons: (1) Cottonseed hulls are an abundant raw material in the South, (2) cotton

(Continued on page 56)

EMERGENCY DEMAND FOR SOUTHERN MINERALS

In the January issue of the MANUFACTURERS RECORD was published an article entitled *Emergency Demand For Southern Minerals*. The following forms Part II and includes supplementary data not available to the author when the first article was published.—EDITOR.

IN order to appraise better the outlook for minerals in the South during 1941, geologists of the various states were asked: "What do you anticipate will be the demand in 1941 for mineral products in your state?" Their replies are both interesting and informative.

Alabama: Coal, of all kinds, up 35 per cent from 1940. Iron ore (red and brown) up 25 per cent. Siliceous materials, sand, gravel, quartzite, and clays, up 15 per cent. Manganese ore, up 20 per cent.

Kentucky: Full capacity of 46 million fire bricks (9 inch equivalent) may be made at our Kentucky plants. 184,000 tons of fire clay will then be needed to make these bricks. The demand in 1941 for fluorspar is likely to be abnormal, whatever the outcome during the year of the World War II. Estimate 300,000 to 350,000 tons of fluorspar will be required during the year 1941, over demand of about 200,000 tons.

North Carolina: Increased demand is expected in the following minerals, which will possibly reach in 1941 the production figures listed below:

Sheet mica	1,130,283 lbs.
Kaolin	16,000 tons
Feldspar	100,000 tons
Stone (dimension and crushed)	9,000,000 tons
Sand and gravel	3,500,000 tons
Tale and pyrophyllite	50,000 tons

Other mineral industries which may be expected to show progress during 1941 include an increased use of—

- 1) Olivine as a refractory
- 2) Rounded granite pebbles and mill liners
- 3) Vermiculite as a solid lubricant
- 4) Manganese sulphate as a fertilizer
- 5) Spodumene

Texas: It is anticipated that the demand for strategic and essential minerals will continue and perhaps be increased during 1941.

The second question asked was: "In order to meet the total 1941 demand, will new deposits have to be opened up?"

Alabama: New brown ore pits. Idle coal mines will be opened but few totally new mines.

Kentucky: Yes, present mines do not contain sufficient tonnages of flint and

Part II

BY

George C. Branner
State Geologist, Arkansas

semi-flint fire clays. New fluorspar deposits will have to be discovered and developed.

North Carolina: New deposits may have to be opened up in the case of sheet mica and possibly feldspar.

Texas: Yes, particularly strategic minerals.

The third question asked was: "In order to meet the total 1941 demand, will existing plants have to be enlarged or modernized?"

Alabama: Decidedly, in both coal and iron.

Kentucky: Some modernizing may be needed; especially in the case of fluorspar, active old mines that are not depleted will have to increase output, else inactive old mines that are not depleted will have to be rehabilitated and worked extensively.

North Carolina: Existing plants probably will have to be enlarged or modernized in the following cases:

Stone industry (dimension and crushed).

Tale and pyrophyllite.

Texas: Emergency will require plant enlargement.

The fourth question asked was: "In case plant expansion will be necessary, do you believe that such expansion can be made relatively permanent or will some additions be closed down upon the termination of the emergency? Have you any suggestions as to how eventual shutdowns can be minimized in your state?"

Alabama: Not much will be permanent. Vigorous research in the use of the materials involved will help prevent shutdowns.

Kentucky: We believe modernizing can be made permanent. With reference to fluorspar only—there is dire necessity now, whether considered normal or abnormal times, for permanent provision of increase of fluorspar production. Because at no time in the past have reserves of fluorspar been allowed to reach such a low condition as at the present. Therefore, any attempt at plant expansions to increase production during the present abnormal conditions is warranted for permanent future requirements. It is not anticipated that a sufficient amount of added demand during the emergency will

make it probable that there will be very much of a shut-down upon the termination of the emergency.

North Carolina: Plant expansion probably will be relatively permanent in the following industries:

Stone industry (dimension and crushed).

Tale and pyrophyllite.

A protective tariff on mica will probably be necessary to maintain the increased production. In the case of the stone industry, the wider appreciation of local stone for building in North Carolina will probably enable the increased production to be continued. The existence of a domestic smelter in the U. S., along with efficient recovery and utilization of by-products, might make some time operations possible.

Texas: Of the new plants opened, some undoubtedly will have a degree of permanency and may become permanent. It is true, however, that a large expanse in mining plants will necessarily have to be curtailed following the emergency.

North Carolina Shipbuilding Company Elects Officers

Homer L. Ferguson, chairman and president of the Newport News Shipbuilding and Dry Dock Company, has been elected chairman of the latter company's new subsidiary, the North Carolina Shipbuilding Company. Roger Williams, vice-president of the Newport News concern was named president. K. D. Fernstrom, who was previously connected with the Newport News company and is now a member of the faculty at Massachusetts Institute of Technology, has been granted a leave of absence from the Institute in order to become vice-president and general manager of the new concern.

The North Carolina Shipbuilding Company is starting construction immediately of new shipways at Wilmington, N. C., to build 25 of the 200 emergency cargo vessels for which Congress recently appropriated \$313,500,000.

North Carolina's Industrial Growth

J. T. Anderson, Industrial Engineer of the North Carolina Department of Conservation and Development, reports for the year 1940 sixty-two new industries as having been located in the State in that year, as well as additions to existing plants numbering 92.

In textiles there were 32 new industries and 68 additions. In Chemicals and Allied Products, 3 new plants and 7 additions; Food and Kindred Products, 14 new industries and 5 additions, the remainder being made up among miscellaneous industries such as Lumber and Woodworking, Paper, Leather, Machinery, etc.

AN INSPIRATION ON WHEELS

BY

Victor W. Lewis

General Live Stock Agent
Atlantic Coast Line Railroad

FOR many years those engaged in educational work in agriculture in the South have preached the gospel of more and better live stock on every farm as a new declaration of independence for that section.

During recent years in most parts of the South, pastures and feed crops have increased, largely in areas formerly devoted to tobacco and cotton, the latter crops being restricted.

While such a program has been carried on in the South generally, many have to some extent overlooked the fact that in Florida we have a section of the South that produces cattle in regular ranch style and where cowboys, chuck wagons, cow ponies and regular ranching are such that it would make any western cattleman or cowboy feel at home.

Furthermore, when one considers that more than 90 per cent of the area of Florida's 35 million acres of land is now in cut-over timber lands and potential grazing areas, and the fact that Florida now supports 1,300,000 cattle, there are wonderful opportunities in that state for increasing its income from timber and live stock products.

In the past Florida has produced lumber and naval stores in large quantities. Most of the original timber is gone and second growth is on its way. While restocking forests with timber, cattle raising will assist land owners to obtain an income for taxes and other overhead expenses; in fact, forestry and cattle development are being combined in that area.

Much of the better soil types of open land in that state is now being seeded to domestic grasses, while thousands of acres of the thinner soil types are going permanently into pine trees to furnish pulpwood, poles and sawmill timber for future generations. The pulp and paper industries continue their southward

march. Timber land owners must learn to treat timber as a crop.

A few years ago, Florida was confronted with a serious cattle pest known as the Texas fever tick. Now that this tick has almost become extinct, large numbers of purebred bulls are being introduced into Florida to improve the quality of the cattle.

According to results of experimental work conducted by Florida agricultural experiment stations, the native wiregrass pastures, on the average, yield approximately 10 pounds of gain in live weight per acre with cattle; in other words, several acres of native pastures are needed to support one animal. By replacing these native grasses with domestic grasses of the tropical and subtropical varieties, like Carpet, Bahia, Dallis, Napier, Para, either separately, or in combination, or with clovers, and by proper handling of such pastures, the gains in live weight per acre can be stepped up to 175 to 350 pounds, live weight.

Therefore, it is realized that there is great need for conserving and developing Florida's timber resources and in expanding the live stock industry in that state. To do this there is a need for proper forest supervision and much work to be done in improving pastures and increasing feed crops. To encourage this, a special campaign was planned whereby the Atlantic Coast Line Railroad would operate a Live Stock, Forage and Forestry Development Train over its rails in Florida in cooperation with the University of Florida College of Agriculture and the Florida Department of Agriculture.

The Atlantic Coast Line installed the equipment exhibits and otherwise prepared the cars to take on the demonstration exhibits from the elaborate material made available by the Florida Agricultural Experiment Stations and the Florida Department of Agriculture. The train consisted of 7 cars and the exhibits were arranged in a progressive order. For example, on entering the train one saw the forestry exhibits, which emphasized farm forestry, including gum farming, young trees on burned and unburned areas, tree planting material, pruning benefits, forestry and grazing combination, pulpwood practices, desirable trees for farm woodlands.

In the agronomy exhibit were displays of principal pasture grasses, legumes, silage and other feed crops.



Top—A farmer of the future. Center—A group of interested high school boys inspect the samples of forage crops. Bottom—A young lady receives valuable instruction in the art of being a dairy maid.

One then passed on to the beef cattle car, in which were live breeding animals and exhibits showing cattle improvement methods and rations, along with parasite control. In addition to this, there was a display of minerals and recommendations with regard to their use in the prevention of "salt sick" in cattle, as well as other functions in building up their body structure and general health.

In the next car was an exhibit dealing with the family milk cow. Too few of the rural population of Florida consume enough milk and milk products. An abundance of clean, wholesome milk on the average farm is highly important. In this car one saw a milk cow of excellent type which yielded 20 quarts of milk per day, also there was found a display of the kinds and amounts of feed required to take care of a family cow.

Next was the swine exhibit, showing a good type brood sow and a fine litter of pigs. There was much information available in the form of charts, photographs, etc., concerning the latest methods of feeding, management and the marketing of swine.

A car devoted to poultry emphasized quality in eggs, methods of improving poultry flocks, poultry production practices, poultry equipment, etc.

This special train of exhibits originated at Gainesville, Fla., and completed its tour at Monticello, Fla., making 41 stops, with a total attendance of 53,606. The visitors included business men of all walks of life, as well as farmers, farm women, 4-H Club and Future Farmer boys and girls. At many points high school boys and girls visited the train in a body. These came with note books and seemed intensely interested in making records for future class work.

Much favorable comment has been given by those visiting the project, such comments being of the nature that while few persons take time to visit the various agricultural experiment stations to view the work being done there, this project offered an opportunity for the results of such experimental work to be studied by the masses.

Newspapers, radios, chambers of commerce, banks, service clubs, county agents, home demonstration agents, vocational agricultural teachers, teachers in the public schools and many other groups assisted in giving wide publicity to this project.

In many sections the banks and business men changed their paid advertising so as to recommend that their patrons be sure to see this Live Stock, Forage and Forestry Development Special Train when in their community.

It is felt by those who saw the project and witnessed its reaction on all groups in the State of Florida that this is the most outstanding project that has come



Top—The exhibit train is greeted with enthusiasm reminiscent of the west. Right—Like a visitor from Texas is this rider with his bovine mount looking rather quizzically at the photographer. Bottom—School boys of all ages visited the exhibit and listened intelligently to every interesting piece of information.

to the attention of that state in a long period of time. It is felt that the great amount of follow-up work that will result will mean much to the live stock and forestry industries of that state.

The Secretary of the Florida Bankers Association had the following to say concerning the project:

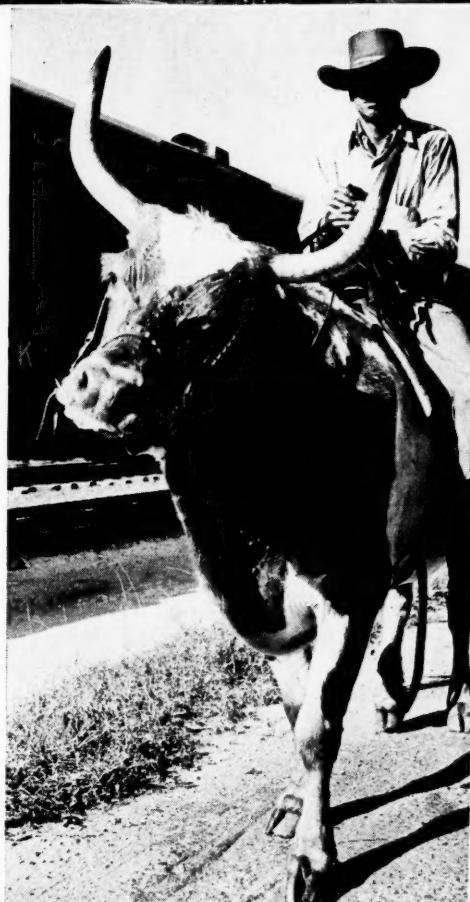
"Probably no one will ever know the very fine work which will result from the inspiration gained by the many farmers and people of Florida visiting this train."

Hon. Nathan Mayo, Florida Commissioner of Agriculture, stated:

"This live stock train is calculated to bring vividly before the people of this state the possibilities in the future development of the live stock industry and in the future development of the live stock industry and in the preparation of pastures and the growing of feeds for cattle and hogs. Attention will be directed to the need of reforestation and the conservation of the state resources."

Dr. Wilmon Newell, Director, Florida Experiment Stations, said prior to its operation:

(Continued on page 56)

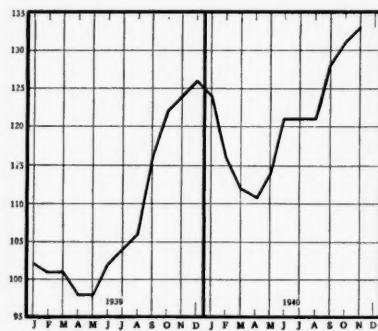


INDUSTRIAL PRODUCTION TRENDS

ON the basis of a 1935-39 = 100 index, industrial production in 1939 averaged 108.3 whereas in 1940 it now appears that the average amounted to 122. Usually at this period of the year there is a marked decline, but such is not likely to be the case in 1941. In fact, when incoming reports are complete it may well be that industrial production for January

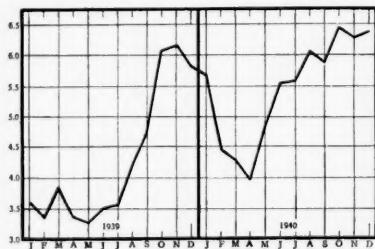
will rise higher still throughout the year as new and expanded factories get production under way.

These and other industries directly affected by the defense program for the most part have exceedingly large unfilled orders on hand including many lines of textiles. Cotton consumption, reflecting the greatly increased activity in the cotton textile industry, rose in December to 775,472 bales compared with 744,088 bales in November and 650,123 bales in December 1939. Total cotton consumption in 1940 amounted to 8,057,648 bales compared with 7,368,846 bales in 1939, an average monthly increase of 57,400 bales—614,071 bales in 1939 and 671,471 bales in 1941.



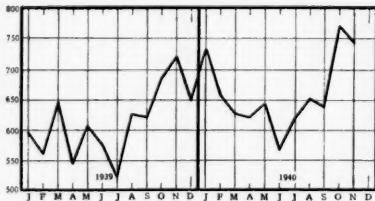
INDUSTRIAL PRODUCTION
(Index 1935-39=100)

was higher than the estimated figure of 136 for December. Furthermore, this figure is likely to be maintained throughout February and rise still higher after March. Of course the major contributing factor in this accelerated industrial production is defense work. Throughout January steel output rose steadily to



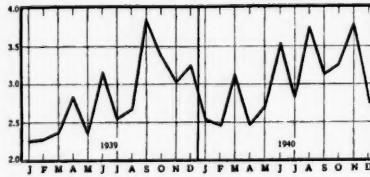
STEEL INGOT PRODUCTION
(Millions short tons)

more than 98 per cent of capacity and new orders approximated or were slightly higher than production. Activity in aircraft, machinery, shipbuilding and armament industries continues to increase and



COTTON CONSUMPTION
(Thousands of bales)

Production of electric power totaling 13,173,000,000 kilowatt hours in December 1940 compared with 11,860,000,000 in December 1939 brought the year's total to 142,247,000,000 kilowatt hours—an increase of 14,210,000,000 kilowatt hours over the 128,037,000,000 kilowatt hour total for 1939. Monthly averages were 11,854,000,000 kilowatt hours in 1940 and 10,670,000,000 kilowatt hours in 1939. Anticipating the heavy demand for electric power in the months to come, most of the larger power companies have announced new and enlarged generating plants to be built in 1941 besides the many now under construction.

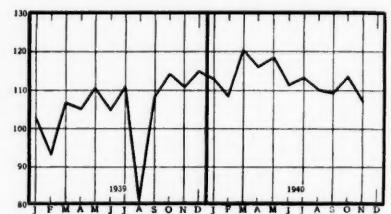


CARLOADINGS
(Millions)

With completion of December figures, total carloadings for 1940 amounted to 36,353,609—a gain of 2,442,111 cars or 7.2 per cent above 1939. With the exception

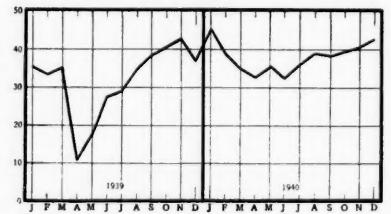
of grain and grain products, livestock, and general merchandise, all commodity loadings showed marked increases, the two highest classifications being ore and coke which rose 32.8 and 32.6 per cent respectively. Forest products increased 13.6 per cent and coal 11.9 per cent.

Although crude petroleum production figures for December are not yet com-



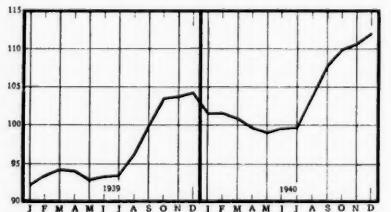
plete, it is apparent already that produc-

tion for the year was approximately 88 million barrels, or almost 7 per cent, above the 1939 total. Average monthly production was 105,380,000 and 112,702,000 barrels respectively in 1939 and 1940. The future outlook for 1941 is that crude petroleum production will mount



steadily although not all grades of refined oil will maintain an uniform increase.

Bituminous coal production in 1940 totaled approximately 455,207,000 tons compared with 390,767,000 tons in 1939, or a monthly average of 37,767,000 tons in 1940 against 32,564,000 tons in 1939. Early reports of January production indicate that the slight decline suffered during the last week of December has been compensated and that the seasonal decline is likely to be much smaller than usual.



MANUFACTURERS RECORD FOR

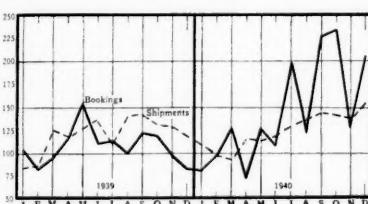
As might be expected from continued high industrial production, factory employment in December rose well above the November figure with the 1923-25 = 100 index pointing to 112. This is not only the highest point reached in the last 21 years but brought the 1940 monthly average to 103.8 against a corresponding average of 96.8 for 1939. Altogether, more than half a million workers were added in nonagricultural employment during December which is in sharp contrast to the usual seasonal decline. Factory employment actually rose almost 1.5 per cent between November and December instead of an anticipated decline of nearly 1.0 per cent. Coupled with the employment increase was a payroll increase of more than 5 per cent. In all nonagricultural employment it is interesting to note that three of the four states registering an increase of more than 3 per cent between November and December were southern—Georgia, 3.1 per cent; Ken-

average of \$215,580,000 compared with an average of \$193,170,000 in 1939. The entire total for 1939 was \$2,318,051,000 or \$53,339,000 less than the 11-month total of 1940. The balance in favor of export over import value has become very marked during 1940 and is likely to be

cars were about 25 per cent higher during the last quarter of 1940 than in the corresponding period of 1939.

Consumer purchases are known to have been considerably higher in December than the seasonal average. In November the department store sales adjusted index (1923-25 = 100) rose from 94 to exactly 100, a position which was probably maintained if not exceeded in December.

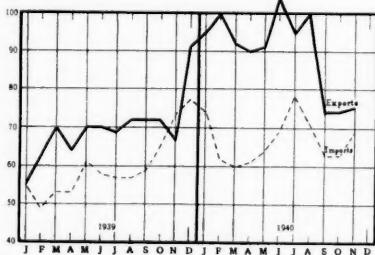
Prices of United States securities that have been rising steadily since last June passed the \$110 mark in November and reached their highest point early in December, but it is not anticipated to continue. The yield on 1960-65 bonds was 2.03 per cent at the peak price.



STRUCTURAL STEEL
(Thousands of tons)

tucky, 3.4 per cent; and Florida, 3.6 per cent.

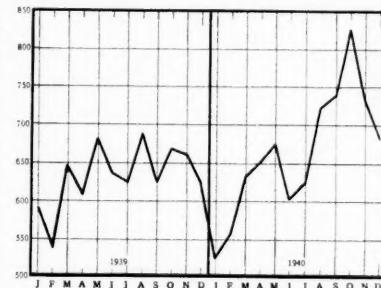
In contrast with the steadily increasing shipments of structural steel during the months of 1940 which together totaled 1,515,543 tons or 5 per cent more than in 1939, orders booked varied considerably from month to month. In spite of this fact, the 12-month total for 1940 of 1,748,144 tons was 34 per cent higher than the volume of orders booked in 1939 and also was more than 15 per cent above the year's shipments. Construction of new



IMPORTS AND EXPORTS
(Adjusted index 1923-25=100)

and expanded plants engaged in defense work was largely responsible for this situation which is likely to continue for some time to come.

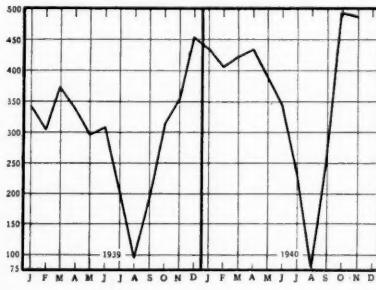
December foreign trade figures are not yet available but through November the 1940 export total was \$3,700,765,000 compared with \$3,177,615,000 for the entire year of 1939. On the basis of monthly averages, 1940 with \$336,433,000 was \$71,632,000 per month higher than the 1939 average of \$264,801,000. A similar situation has developed with imports. The latter for the first eleven months of 1940 amounted to \$2,371,390,000 or a monthly



SOUTHERN PINE PRODUCTION
(Million board feet)

more so during 1941 with additional shipments of war materials to England.

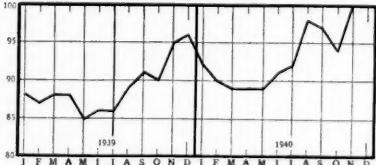
Southern pine production that started the year 1940 with 525,000,000 board feet increased steadily throughout most of the year as construction of cantonments for the selective service draftees and other defense program buildings got underway. With a total approximating 8,000,-



AUTOMOBILE FACTORY SALES
(Thousands)

000,000 board feet in 1940 compared with less than 7,600,000,000 board feet in 1939 or an average of 633,000,000 board feet in 1939 against 663,000,000 board feet in 1940.

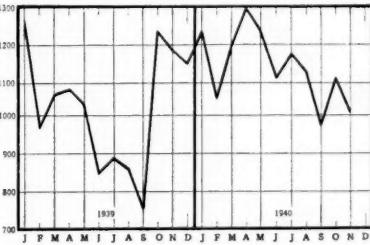
As with so many other factors in 1940, factory sales of automobiles for the first eleven months amounting to 3,985,787 were 408,608 more than the entire total for 1939. But while monthly averages were 335,071 in 1940 against 298,098 in 1939, they were by no means evenly distributed and the future months are likely to be divergent as those which have just passed. The only certain thing is that, at



DEPARTMENT STORE SALES
(Adjusted index 1923-25=100)

least for the immediate future, sales will probably maintain a relatively high level. Retail sales of new cars as well as used

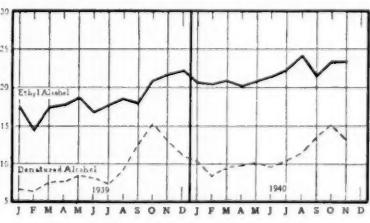
Commercial failures took a sharp rise in the fall of 1939 and have continued at a relatively high level ever since so that the 1940 monthly average was 1,139 compared with 998 in 1939. In spite of this



COMMERCIAL FAILURES
(Total number)

fact the volume of liabilities has fallen considerably, so that in comparison with a monthly average of \$14,224,000 in 1939, the figure in 1940 was down to \$13,943,000.

As might be expected from increased industrial production and particularly



ALCOHOL PRODUCTION
(Millions of gallons)

due to defense orders, the manufacture of essential chemicals has risen steadily as exemplified by both ethyl and denatured alcohol.

The Progress of Research in the Bituminous Coal Industry

NOWHERE are the marvels of modern science better exemplified than in the field of one of America's greatest natural resources—bituminous coal. The coal itself, as it lays in the ground in quantity almost beyond calculation, is the same today as when it first felt the miner's pick, more than a century ago. But in the method of its mining and its utilization and in the new uses that have been discovered—some almost magical—it is as different as is the airplane from the ox cart.

Research and experimentation, the handmaidens of discovery and invention, have found a fertile field in the realm of coal and this field is being cultivated with constantly increasing intensity.

The increasing competitive pressure upon coal both in industrial and domestic markets has spurred the producers and distributors of bituminous coal to explore every avenue for increasing efficiency, economy and safety in the mining of coal and its preparation for market, and for increasing the efficiency and convenience in the burning of coal for heat and energy and finally for finding new uses for coal.

In the mining of coal, power drills, mechanical loaders and electrically operated trains for the underground haulage of coal to the tipple, are today commonplace and have made it possible for the industry to sustain a basic wage scale that averages better than 88 cents per hour for all classes of mine labor, and yet still maintain a price level for coal at the mine, taking it all and all, just about the same as it was twenty years ago.

The preparation of coal, which embraces the sizing and often washing and dust treating, affords further evidence of the march of scientific progress within the industry.

Two pounds of bituminous coal under the boiler of a railroad locomotive today will do the work three pounds did a few years ago. Assuming the same unit price for the coal, this increased efficiency represents a 33 percent decrease in the railroads' fuel bill per ton mile.

In the generation of electric power in coal burning steam plants the ratio was seven pounds of bituminous coal to one kilowatt hour of electricity forty years ago. Today in the most modern plants it is less than one pound of coal to one KWH.

This helps explain why the Tennessee Valley Authority is at present engaged

in constructing a huge coal burning steam plant for electric power generation, located adjacent to Watts Bar Dam in Tennessee, to have an installed capacity of 120,000 kilowatts and scheduled for completion December, 1941.

Factory sales of mechanical coal stokers during 1940 approximated 150,000 units, a 50 percent increase over 1939. Further improvements in the field of automatic home heating with coal is one of the prime objectives of the expanded program for coal research now under way. But the fact that more than twice as many automatic coal stokers are now sold every month than formerly were sold in an entire year speaks for itself.

When it comes to the question of new uses for coal, it is a striking fact that today there are more than one thousand commercial products in every day use which are derivatives from coal—all the way from farm fertilizer to medicines, perfumes, explosives, tooth brush bristles and synthetic silk hose.

Research and invention are entitled to a share in the credit for great advance in safety and accident prevention in coal mining that has been recorded during the past thirty years. The fatalities per million tons have been on a downward curve and in the period 1910-1939, major explosions in coal mines declined ninety percent.

Research and experimentation has been one phase of the work of the United States Bureau of Mines ever since its establishment in 1910. Coal research and scientific study in this field has been conducted in many universities and scientific schools. The state universities of Alabama, West Virginia, Kentucky, Ohio, Illinois, Missouri and Washington State, the Massachusetts Institute of Technology, Penn State College, Carnegie Institute of Technology at Pittsburgh, Purdue University in Indiana and Armour Institute in Illinois are all entitled to honorable mention in this connection.

The producers of bituminous coal for many years have financed scientific study and research, both individually and collectively, through their district and national associations, but in order to further expand and systematize industrial activity in this field a separate corporation affiliated with the National Coal Association was set up seven years ago, entitled Bituminous Coal Research, Inc.

Through the instrumentality of this agency grants of funds have been made to Pennsylvania State College and Carne-

the Present Program

and

the Future Prospects

BY

C. A. Reed

Secretary, Bituminous Coal Research, Inc.
and Chief, Engineering Division of the
National Coal Association

gie Institute of Technology, and more recently to the Battelle Memorial Institute at Columbus, Ohio, to defray the cost of special studies conducted by these institutions. A further expansion and intensification of activities in research and technology has recently been announced. This expanded program looking to new uses and new economy in the use of coal is one phase of the many-sided cooperative efforts of the producers of bituminous coal for national defense.

The development of coal dust engines, improved stokers and smokeless stoves are among the many technological problems to be studied in conjunction with and through the facilities of Battelle Memorial Institute. In an earlier program the studies included the matter of a better selection of coal for steam generating equipment in large and small plants, the difficulties which occurred in the segregation of coal in overhead and stoker bunkers, and the possibility of further research on the gasification of coal, the treatment of coal with oil and other petroleum products in order to make coal dustless on delivery. Study was also made of the use of mechanically fired equipment for drying forage crops and curing certain green farm crops. Much more research was carried on to further develop by-products such as explosives, medicine and chemicals.

These and other studies and development work brought a great deal of new information to producers of coal and manufacturers of coal burning equipment, as well as to the consumer. It was found that there was a lack of liaison between the coal producers and the manufacturers of equipment, each feeling that they had their own problems to attend to, instead of realizing that they had a com-

(Continued on page 50)

National Defense Program Awards in the South

(December 16—January 15)

ALABAMA

<i>Unit</i>	<i>Manufacturer</i>	<i>Item</i>	<i>Amount</i>
Qtmtr. Corps	Institute for Deaf & Blind, Talladega.....	Bleached Cotton Pillowcases, 5,000	\$1,075
" "	Gardiner Warring Co., Florence	Bleached Sleeveless Summer Undershirts, 1,000,000	160,000
" "	Palmetto Cotton Mills, Lanett	Khaki Cotton Duck, 45,000 yds.	10,453
" "	Greeson Mfg. Corp., Montgomery	1,000,000 Tent Pins	25,605
" "	Greeson Mfg. Corp., Montgomery	100,000 Pole Tents	33,000
" "	Inco Metal Products Co., Birmingham	25,000 Trunk Lockers	63,700
" "	Dixie Metal Products Co., Birmingham	60,000 Trunk Lockers	154,800
" "	Kilby Steel Co., Anniston	500,000 Repair Parts for Folding Steel Cots	54,000
" "	Miller & Co., Selma	1,704,854 Large 24 in. and Small 16 in. Wooden Tent Pins	44,588

FLORIDA

Qtmtr. Corps	Maddix Brothers, Fort Myers	5,000 Pyramidal Tents	52,000
" "	Huckins Yacht Corp., Jacksonville	Aircraft Rescue Boat	6,800
" "	Biscayne Tent & Awning Co., Inc., Miami	10,000 Pyramidal Tents	134,200
Supplies & Accts.	Franklin Sales Co., Inc., Fort Myers	Gasoline Rotary Mowers	11,628
" "	Gibbs Gas Engine Company of Florida, Jacksonville..	Mine Sweepers	640,000

GEORGIA

Qtmtr. Corps	Hugh McMath, Columbus	Road Surfacing Materials at Fort Benning	179,260
" "	Union Mfg. Co., Union Point	Tan Cotton Socks, 76,000	9,872
" "	Richmond Hosiery Mills, Rossville	Tan Cotton Socks, 400,000	50,460
" "	Classic City Overall Co., Athens	Denim Working Trousers, 70,000 Pairs	58,100
" "	Nunnally & McCrea Co., Atlanta	Denim Working Trousers, 50,000 Pairs	43,283
" "	Griffin Construction Co., Inc., and MacDougal Construction Co., Atlanta (Architects & Engineers: Cooper & Cooper, Inc., Atlanta)	2,000 Bed General Hospital	2,463,712
" "	Sterling Textile Co., Atlanta	Khaki Cotton Cloth, 140,000 yds.	30,030
" "	Sequoia Dept. of H. Schatzi Co., South Griffin.....	Khaki Cotton Cloth, 250,000 yds.	52,947
" "	Ray M. Lee Co., Atlanta	Three Cold Storage Plants at Fort Benning	226,116
" "	Callaway Mills, LaGrange	445,000 yds. Khaki Cotton Duck	153,080
" "	Couch Bros. Mfg. Co., East Point	2,000 Pyramidal Tents	27,680
" "	Southeastern Mfg. Co., Monroe	24,000 Khaki Cotton Trousers	15,000
" "	Empire Mfg. Co., Winder	63,500 Bakers' and Cooks' Coats	60,960
" "	Perry Bros. Mfg. Co., Athens	30,000 Khaki (Percale) Cotton Shirts	26,250
" "	Peerless Woolen Mills, Rossville	1,771 O. D. Overcoating	4,495
" "	Carwood Mfg. Co., Winder	72,000 Khaki Cotton Trousers	45,000
" "	Rome Mfg. Co., Rome	70,000 Khaki Cotton Trousers	42,693
Ordnance	Reynolds Corp., Macon	Construction of a Plant for the Manufacture and Assembly of Ordnance Equipment. Est. cost not to exceed	1,673,315
		Ticking, Mattress & Pillow	69,650

Supplies & Accts. Eagle & Phenix Mills, Columbus

KENTUCKY

Qtmtr. Corps	Skilken Bros., Columbus, Ohio	Heating Plant at Godman Field	50,495
" "	John G. Exterkamp, Covington	Utilities at Fort Thomas	12,825
" "	Bellsup Hardware & Mfg. Co., Louisville	6,500 Rope Halters	4,550
" "	Louisville Tin & Stove Co., Louisville	Shields, Water Heater Case, For Range Field, S.500	7,990
Ordnance	Shuler Axle Co., Inc., Louisville	Artillery Material	22,937
Air Corps	Standard Oil Co., Louisville	Engine Fuel	30,800
Ordnance	Henry Vogt Machine Co., Louisville	Machinery	15,290

LOUISIANA

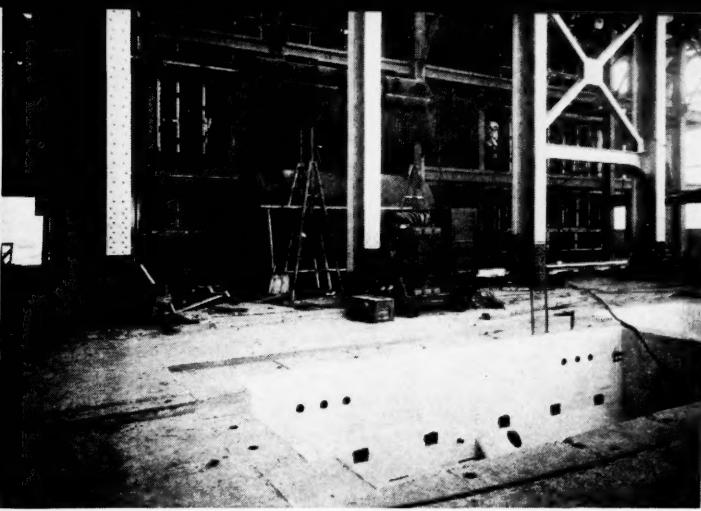
Qtmtr. Corps	Louisiana Pants Mfg. Co., New Orleans	Khaki Cotton Shirts, 30,000 pair	11,550
" "	National Hosiery Mills, Inc., New Orleans	Tan Cotton Socks, 200,000 pairs	25,193
Marines	Mente & Co., Inc., New Orleans	Sand Bags	10,000
Supplies & Accts.	Gulf & Valley Cotton Oil, Div. of Blue Plate Foods, Inc., New Orleans	Vegetable Shortening	121,694

MARYLAND

Ordnance	Bendix Aviation Corp., Julien P. Friez & Sons Div., Baltimore	Fire Control Equipment	25,000
Qtmtr. Corps	S. Rosenbloom, Inc., Baltimore	Mattress Covers, 600,000	586,956
Ordnance	Revere Copper & Brass, Inc., Baltimore	Ammunition Components	764,480
Qtmtr. Corps	S. Rosenbloom, Inc., Baltimore	Denim Working Trousers, 371,500 pairs	312,348
Signal Corps	Bendix Radio Corp., Baltimore	Components for Frequency Meters	44,527
Chemical Warfare	Chase Brass & Copper Co., Inc., Baltimore	Brass	6,982
" "	B. F. Sturtevant Co., Baltimore	Fan	1,700
" "	Graybar Electric Co., Inc., Baltimore	Electrical Supplies	1,841
" "	Wachter, Hoskins & Russell, Baltimore	Steel Pipe	1,544
" "	Baltimore Lumber Co., Baltimore	Lumber	1,047
" "	J. Dashew, Baltimore	Tables	1,195

Chemical Warfare	American Bitumels Co., Baltimore	1,015
" "	Kahl-Holt Company, Baltimore	1,579
" "	National Lead Co., Baltimore	4,500
" "	DeLuxe Clothing Mfg. Co., Baltimore	55,860
Qtmtr. Corps	Bristol Clothes, Inc., Baltimore	32,767
" "	Oriole Mfg. Co., Baltimore	179,325
	Baltimore Paint & Color Works, Inc.	
" "		
Air Corps	The Glenn L. Martin Co., Baltimore	133,361
	Fairchild Engine & Airplane Corp., Fairchild Aviation Division, Hagerstown	892,013
Supplies & Accts.	Alban Tractor Co., Inc., Baltimore	
" "	Chas. D. Bridgell, Inc., Crisfield	
" "	Carey Machinery & Supply Co., Baltimore	
Marine Corps Supplies & Accts.	Steel & Wire Products Co., Baltimore	
" "	Mt. Vernon-Woodberry Mills, Inc., Baltimore	
Qtmtr. Corps	Julien P. Friez & Sons Div. of Bendix Aviation Corp., Baltimore	
" "	Maryland Workshop for the Blind	
Ordnance	Cummins Construction Corp. & Riggs, Distler & Co., Inc., Baltimore (Architectural & Engineering: Whitman, Requardt & Smith, Baltimore)	
Medical Corps	Revere Copper & Brass, Inc., Baltimore Div., Baltimore	
Ordnance	S. Rosenbloom, Inc., Baltimore	
" "	Lincoln Engineering Co., Baltimore	
Chemical Warfare	Julien P. Friez & Sons, Baltimore	
" "	Pangborn Corp., Hagerstown	
" "	Porcelain Enamel & Mfg. Co., Baltimore	
Ordnance	Seaboard Brass & Copper Co., Baltimore	
Qtmtr. Corps	Butler Brothers, Baltimore	
Supplies & Accts.	Triumph Explosives, Inc., Elkton	
" "	F. Jacobson & Sons, Inc., Salisbury	
Ordnance	Rustless Iron & Steel Corp., Baltimore	
	J. F. Dusman, Baltimore	
	E. I. duPont de Nemours & Co., Inc., Wilmington, Del.	
Supplies & Accts.	Wm. E. Hooper & Sons Co., Baltimore	
" "	Samuel M. Dell & Co., Inc., Baltimore	
" "	Revere Copper & Brass, Inc., Baltimore Div., Baltimore	
" "	Revere Copper & Brass, Inc., Baltimore Div., Baltimore	
Bureau of Ships	MISSISSIPPI	
Qtmtr. Corps	Ingalls Shipbuilding Company	
	Stahl Urban Co., Brookhaven	
Qtmtr. Corps	MISSOURI	
" "	Premium Cap Co., St. Louis	
	Natkin & Co., St. Louis	
" "	International Shoe Co., St. Louis	
" "	Brown Shoe Co., Inc., St. Louis	
Medical Corps	A. S. Alde Co., St. Louis	
" "	Buck X-Ograph Co., St. Louis	
Signal Corps	Air Communications, Inc., Kansas City	
Qtmtr. Corps	Shapley Cap Co., St. Louis	
" "	Ely & Walker Dry Goods, St. Louis	
" "	Rice-Stix Dry Goods Co., St. Louis	
" "	S. G. Adams Co., St. Louis	
" "	Henry Evers Mfg. Co., St. Louis	
" "	Adjustable Engineers Cap Co., St. Louis	
" "	Premium Cap Co., St. Louis	
" "	Empire Cap Mfg. Co., Kansas City	
" "	Seidlitz Paint & Varnish Co., Kansas City	
" "	Wackman Welded Ware Co., St. Louis	
Air Corps	Standard Steel Works, North Kansas City	
Supplies & Accts.	American Scale Co., Kansas City	
" "	Broderick & Bascom Rope Co., St. Louis	
" "	American Car & Foundry Co., St. Louis	
Qtmtr. Corps	Dart Truck Co., Kansas City	
" "	Ely & Walker Dry Goods, Kennett	
" "	Rice-Stix Dry Goods, Farmington	
" "	Miller Mfg. Co., Joplin	

(Continued on page 46)



Duke Power Company, Charlotte, N. C., has started construction on its third large power unit in two years. This latest 40,000-kilowatt project, cost of which is estimated at \$3,000,000 is going forward at the Rusk plant, near Spencer, where an 80,000-kilowatt unit is scheduled for completion in July. Scenes above show the twin 375,000-pound, 900°, 900 total temperature boilers, together with a part of the feed water heating equipment also the foundation for the turbine, and also a view of the present addition, showing the temporary wall which will be removed to make the extension.

First and Merchants National Bank of Richmond Elects Officers

At a meeting of the Directors of the First and Merchants National Bank, Richmond, Va., January 17, John M. Miller, Jr., was re-elected Chairman of the Board; H. Hitter Harris was re-elected President.

Other officers re-elected are the following: Charles R. Burnett, Vice-President; John C. White, Vice-President; Alex F. Ryland, Vice-President; A. K. Parker, Vice-President; G. Jeter Jones, Vice-President; James M. Ball, Jr., Vice-President and Cashier; H. P. Gillespie, Assistant Vice-President; J. Phillips Coleman, Assistant Vice-President; G. J. Hunt, Assistant Vice-President; John S. Haw, Assistant Cashier; O. C. White, Assistant Cashier; Samuel Crane, Assistant Cashier.

In the Trust Department the following were re-elected: S. P. Ryland, Vice-President and Trust Officer; R. T. Marsh, Jr., Vice-President; Guy T. Mallonee, Trust Officer; J. H. Baskerville, Assistant Trust Officer; R. L. Gordon, Jr., Assistant Trust Officer; A. E. W. Harrison, Assistant Trust Officer; C. L. Harrison, Jr., Assistant Trust Officer; W. D. Richardson, Assistant Trust Officer; T. K. McRae, Assistant Cashier.

C. S. Trevett was re-elected Auditor.

R. Winfred Nuckles and Joseph M. Wharton were named assistant cashiers. Mr. Nuckles is a graduate of the University of Richmond, American Institute of Banking and Rutgers Graduate School of Banking. He entered the First and Merchants bank in 1921.

Mr. Wharton came to the bank in 1912, and also is a graduate of the American Institute of Banking.

U. S. Steel Shipbuilding Subsidiary Expands

The Federal Shipbuilding and Dry Dock Company of Kearny, New Jersey, United States Steel Corporation subsidiary, is proceeding with arrangements to acquire fifteen and one-quarter acres of land which adjoin its property at Kearny for further extensions to its operations.

The property consists of 905 feet of frontage along the Hackensack River and 547 feet of frontage along the Lincoln Highway and is owned by the Carnegie-Illinois Steel Corporation, largest steel manufacturing subsidiary of United States Steel.

Federal's contemplated expansion consists of additional shipways, an outfitting basin, together with certain other miscellaneous crane equipment and service buildings to provide the facilities necessary to construct its share of the national defense shipbuilding program.

Federal Shipbuilding and Dry Dock Company has on hand orders for the building of 42 naval and 10 merchant vessels. Fifteen ships were completed last year and more than 10,000 men are presently employed at the Kearny Yards. A large part of the force is working in three shift operations.

Republic Steel's Income For 1940

Republic Steel Corporation's net income for the year 1940 amounted to \$21,113,507, after all charges and taxes. This compares with a net income after charges and taxes for 1939 of \$10,671,343.

Provisions for depreciation and depletion for 1940 amounted to \$11,787,631 and for federal income taxes to approximately \$8,000,000. Federal tax provision in 1939 was \$2,450,000.

Net profits after charges and taxes for

the fourth quarter total \$8,480,174, compared with \$6,772,693 in the corresponding quarter of 1939.

The rate of earnings on the Common Stock in 1940 was \$3.30 per share for 5,670,628 shares outstanding, compared to \$1.42 in 1939. Dividends paid during 1940 totaled \$6,832,400, which included current dividends and all arrearages on Preferred Stock and a dividend on Common Stock. The corporation also set aside during the year \$6,300,000 covering all accumulations for a Purchase Fund for the 6 per cent Cumulative Convertible Preferred Stock.

The operating rate for the year was 78 per cent of capacity. For the fourth quarter it was 95 per cent of capacity, and currently it is 99 per cent of capacity.

Steel Production

Charles M. Schwab, beloved of all steel men, and first president of the United States Steel Corporation, used to tell how mistaken were the pessimists who thought the annual steel making capacity of this country could never reach 25,000,000 tons. Later he spoke with pride, as was his wont always about American progress, of the fact he had lived to see America's steel capacity reach 50,000,000 tons.

At the beginning of the century, when the U. S. Steel Corporation was formed, the total steel production of the country was slightly over 10,000,000 tons.

In 1929 it had reached the amazing figure of 60,800,000 tons which was the highest in peace time history.

The American Iron and Steel Institute now reports that our steel producing capacity is estimated at 84,148,000 tons. This includes allowances for normal shutdowns for repairs and similar purposes. Even on an operating basis of 95 per cent of capacity it is estimated production would reach 80,000,000 tons.

It is a comforting thought in the present emergency that this giant, basic, capital goods industry is in such a splendid condition to meet the requirements of our own defense program, together with what are likely to be the needs of Great Britain.



Duke Power Co., North Carolina utility company, is starting construction of a second addition to its Buck plant, near Spencer, as machinery installation proceeds on a first addition, which is scheduled to start operations July 1. The picture at left shows the cofferdam enclosing the area to be occupied by the second 40,000 kilowatt hydrogen cooled, 3,600 r.p.m. generator, which with the one 900-pound, 900 degree boiler, will be a duplicate of the two in the original addition and of the two recently installed in the company's Cliffside station. Completion of the second unit is expected by summer of 1942. The new Cliffside plant is an 80,000-kilowatt plant, having two 40,000-kilowatt generators and two 375,000 pound, 900 degree, 900 total temperature boilers. It has been in successful operation since the first of July and is designed with a temporary end so that additional units may be added.

South's Industrial Contracts Gain

INDUSTRIAL construction, a proportion of which is being Federally financed, gained substantially during January, according to tabulations prepared from reports published in the CONSTRUCTION DAILY BULLETIN. The total of industrial contracts was \$75,889,000, a figure higher than for any month during the previous year, except the peak reached in November.

Great munition plants, huge shipyards, power company and telephone programs, as well as industrial operations of a more peaceful character such as the \$6,000,000 expansion at a Louisiana paper plant, were all numbered among projects, either newly initiated, active or contracted for during the month.

The \$52,000,000 smokeless powder plant and \$20,000,000 bag loading plant proposed at Childersburg, Ala., led the list, including aircraft assembly plants for Tulsa, Okla., and Fort Worth, Texas; a \$11,132,000 anhydrous ammonia plant at West Henderson, Ky., and a \$28,000,000 ammunition loading project at Humboldt, near Milan, Tenn.

Work was started on a branch railroad line to the site of the \$15,000,000 ammonia plant to be erected near Morgantown, W. Va., by E. I. du Pont de Nemours & Co. Todd Shipyards Corp. proposed to build \$6,000,000 10-way shipyard at Houston, Texas, and also contracted to construct a \$2,254,000 floating dry dock for the Navy Department at Galveston, in the same State.

Gaylord Container Corporation's expansion at Bogalusa, La., was placed at \$6,000,000. Award of contract was effected for a \$11,819,000 small arms ammunition plant at St. Louis, Mo., for the War Department. A 3,500-ton steel contract was placed for the \$11,000,000 Curtiss-Wright Corporation plant also at St. Louis. Expansion at the Weirton, W.

Va., works of Weirton Steel Co., costing \$10,000,000, includes a blast furnace and sixty coke ovens.

The 1941 budget of Consolidated Gas, Electric Light & Power Co., Baltimore, provides for expenditure of \$8,655,000, in addition to a \$3,899,000 carryover from 1940. Engineering is actively proceeding on the \$6,750,000, 67,000-horsepower plant to be erected by this company at Riverside. Contract for the four major buildings at the new \$5,000,000 naval ordnance plant, near Louisville, Ky., was made by Westinghouse Electric & Manufacturing Co., which will operate the plant.

A \$3,000,000 steam electric generating plant will be erected by Carolina Power & Light Co., Raleigh, according to an announcement made early in the month. Contract was let by the Navy Department to E. I. du Pont de Nemours & Co. for expansion of the Indian Head, Md.,

powder manufacturing facilities, cost of the work being put at \$3,490,000. Southern Bell Telephone & Telegraph Co. expenditures for the Carolinas were estimated at \$4,750,000 for 1941.

The Houston, Texas program of Southwestern Bell Telephone Co. will involve \$2,500,000, with the latest authorization of Chesapeake & Potomac Telephone Company of Virginia reported at \$1,355,000 for plant and equipment. Bids were received for the \$1,000,000 Macon, Ga. fuse plant of Reynolds Metals Corp., now actively constructing a \$23,500,000 aluminum plant at Lister, Ala., and reported to be planning a \$15,000,000 aluminum rolling mill.

A \$1,750,000 shipyard with six or eight ways is to be established at Wilmington, N. C., by Newport News Shipbuilding & Dry Dock Corp., with additional yards reported to be covered by Navy Depart-

Statistics of South's Construction

	January, 1941		Jan. 1940 Contracts Awarded
	Contracts Awarded	Contracts to be Awarded	
PRIVATE CONSTRUCTION			
BUILDING			
Assembly (Churches, Theatres, Auditoriums, Fraternal)	\$1,466,000	\$2,465,000	\$1,233,000
Commercial (Stores, Restaurants, Filling Stations, Garages, etc.)	1,911,000	1,248,000	2,576,000
Residential (Apartments, Hotels, Dwellings)	4,350,000	2,092,000	5,552,000
Office	378,000	480,000	588,000
	\$8,085,000	\$6,285,000	\$9,949,000
	\$75,889,000	\$161,567,000	\$9,765,000
INDUSTRIAL			
PUBLIC CONSTRUCTION			
BUILDING			
City, County, State, Federal	39,010,000	\$51,774,000	\$6,390,000
Housing	7,565,000	24,832,000	10,187,000
Schools	1,449,000	8,386,000	1,378,000
	\$48,024,000	\$84,992,000	\$17,955,000
ENGINEERING			
Dams, Drainage, Earthwork, Airports	\$877,000	\$46,139,000	\$2,980,000
Federal, County, Municipal Electric	1,891,000	12,061,000	3,035,000
Sewers and Waterworks	581,000	29,564,000	1,080,000
	\$3,349,000	\$87,764,000	\$7,095,000
ROADS, STREETS AND BRIDGES			
	\$6,370,000	\$98,660,000	\$14,498,000
TOTAL	\$141,717,000	\$439,268,000	\$59,262,000

M A N U F A C T U R E R S R E C O R D F O R



PROOF

that you can count on extra years of efficient, uninterrupted service from Kinnear Rolling Doors is found in hundreds of actual records from plants like yours. Doors that have given 20, 30 and 40 years of continuous, hard, daily service are often reported. You'll also get the economy — in space, time and money — of doors that coil compactly out of the way. It will pay you to install Kinnear Rolling Doors. Write for details!

The KINNEAR Mfg. Co.
1600-20 FIELDS AVENUE
COLUMBUS · · OHIO

ment negotiations at New Orleans, La., Mobile, Ala., and Baltimore, Md. Work is to start soon on a \$1,000,000 pipeline for W. R. Davis & Co., Houston, to link the Rincon field in Starr County, Texas, with the Port of Brownsville.

Contract was awarded for the St. Louis, Mo., plant of Continental Can Co. under a program to spend \$25,000,000 within the next three years throughout the country. A new \$700,000 plant at Pensacola, Fla., for Diraplane Manufacturing Co. contemplates 231,000 feet of floor space with an airport, hangars, terminal building and training quarters also proposed. Plans for a big newspaper plant progressed for the Atlanta, Ga., Constitution.

Restoration of the Amarillo, Texas plant of American Smelting & Refining Co., New York, will cost \$200,000. A \$300,000 bus station is proposed at Birmingham, Ala., for Southeastern Greyhound Lines. The contract was placed for a \$500,000 mooring pier at the Fairfield, Baltimore plant of Maryland Dry Dock Co. Installation of new equipment and improvements to cost \$227,000 at Fieldale, Va., will be made by Appalachian Electric Power Co., Richmond.

Plant improvements of the Bluefield (W. Va.) Telephone Co. will cost \$200,000. J. W. Jackson Beverage Company's plant at Wilmington, N. C., will cost \$125,000. Permit was taken out by Monsanto Chemical Co., St. Louis, for a \$200,000 warehouse addition. Contract was awarded for a \$175,000 building at the Baltimore plant of Rustless Iron & Steel

Corp. This company recently finished a \$2,500,000 expansion. A 240-ton sulphuric acid plant is to be erected at Isabella, Tenn., by Tennessee Copper Co.

Erection of the synthetic rubber products plant at Waynesville, N. C., will cost \$100,000, which is to be laid out by Dayton Rubber & Manufacturing Co. Texas Tin Corp. was formed at Houston for processing Mexican tin. Shell Union Oil Corp. being reported as planning a butadiene plant at the same point. Four additional buildings are to be erected by Intercontinent Aircraft Corp., Miami, Fla. Site was selected near Longview, Texas, for a \$125,000 unit for Madaras Steel Corp. Award was made for new Houston, Texas facilities for Chicago Bridge & Iron Co., and also for a \$100,000 exchange at Hattiesburg, Miss., for Southern Bell Telephone & Telegraph Co.

Southern construction contracts, according to the CONSTRUCTION DAILY BULLETIN reports, amounted to \$141,717,000 during January for the sixteen States below the Mason and Dixon line. While considerably above the value of construction contracts reported in the corresponding month of last year, the current January total represents a drop from the peak figure of the preceding month.

The industrial figure of \$75,889,000 was the highest for the various types of work. Public building, embracing various local and Federal projects as well as schools and public housing work, slowed to \$48,024,000, when compared with December's \$176,608,000, which apparently marked the high point in the current Government construction program. The January total for private building was \$8,085,000. Comparable work initiated in the preceding month was valued at \$13,160,000.

Government engineering projects during January totaled \$3,349,000, a drop when compared with the \$18,636,000 of December. Lack of large dam contracts, or extensive rural electrification programs, such as prevailed in the previous month, accounted for much of the slackened pace.

KINNEAR
ROLLING DOORS

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that you can count on extra years of efficient, uninterrupted service from Kinnear Rolling Doors is found in hundreds of actual records from plants like yours. Doors that have given 20, 30 and 40 years of continuous, hard, daily service are often reported. You'll also get the economy — in space, time and money — of doors that coil compactly out of the way. It will pay you to install Kinnear Rolling Doors. Write for details!

HERE

is the new 1941 issue of the book that gives you complete, convenient information on how to meet your service door requirements. It shows why Kinnear Rolling Doors are so widely preferred in industrial plants such as yours. It tells why the smooth, dependable, space saving operation of the rugged, all-steel interlocking slat curtain (originated by Kinnear) is unsurpassed for economy, efficiency and durability. Send for your free copy today!

The KINNEAR Mfg. Co.
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Highways and bridges placed under contract, or covered by January bid openings aggregated \$6,370,000. Texas and Virginia were the most active. It is expected that other of the Southern States will accelerate work on programs which recently were altogether estimated in the neighborhood of a quarter of billion dollars.

Steel work on North American Aviation's main building at the \$7,000,000 airplane factory being built at Hensley Field, Dallas, where production is scheduled to start in April. The plant will have a capacity of over 300 military planes per month; it will employ about 13,000 workers and will be the largest air conditioned factory in the world. The factory is reported to be of virtually bomb-proof construction and will have no skylights nor windows. In addition to the main building shown here which is still to be extended 270 feet to the left, the plant will include hangar, foundry, office, paint storage, drop hammer, and power plant buildings on the 180-acre site.



New Industrial Plants and Expansions in the South During January, 1941

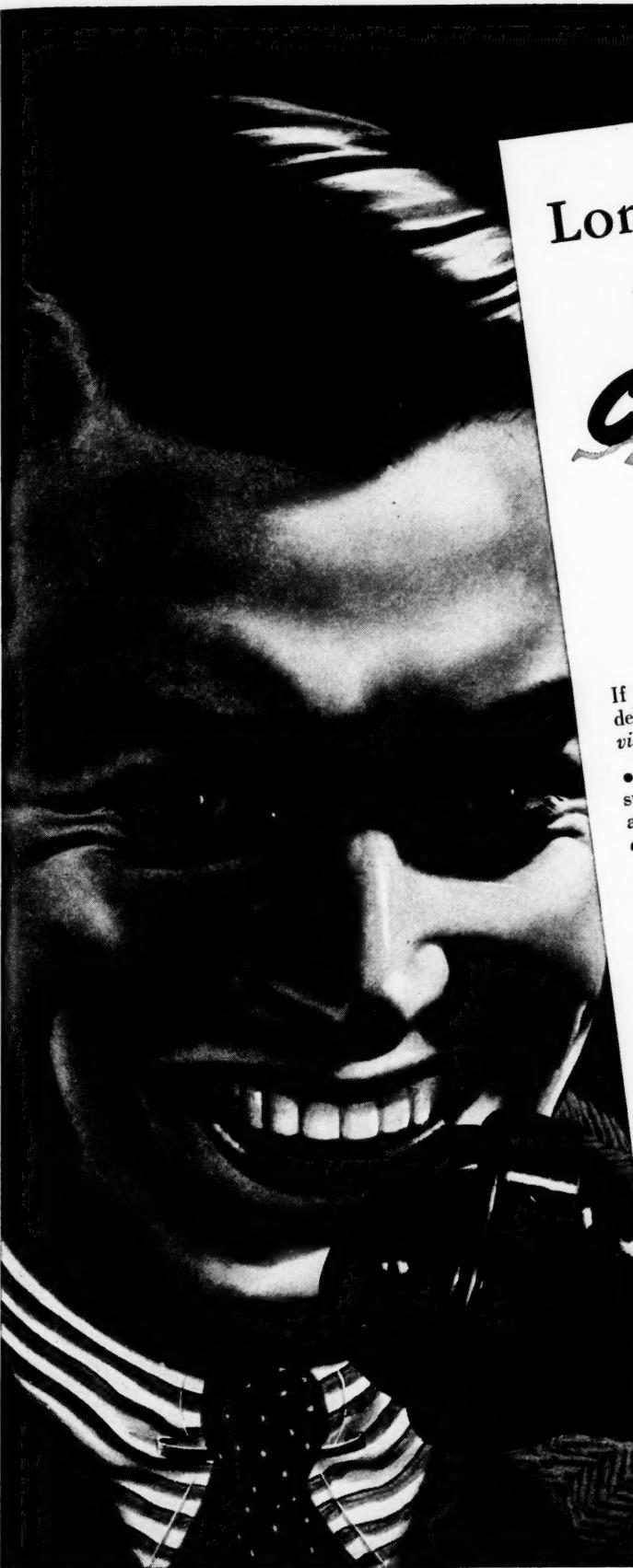
Contracts Awarded

Ala., Childersburg—E. I. duPont de Nemours & Co.; powder plant (government owned)	\$47,997,000
Ala., Lewisburg—Sloss-Sheffield Steel & Iron Co.; rehabilitation	30,000
Ala., Piedmont—Standard-Coosa Thatcher Co.; addition	30,000
Ark., Camden—Williams Roofing Co.; plant	40,000
D. C., Washington—Alexandria, Barcroft & Washington Transit Co.; buses	110,000
Ga., Atlanta—Atlanta Baggage & Car Company; building	
Ga., Atlanta—Southern Waxed Paper Co.; addition	
Ga., Atlanta—Westinghouse Electric & Mfg. Co.; building	
Ga., Augusta—Southeastern Fur Company; building	
Ga., Augusta—Southern Cotton Oil Company; building	
Ga., Bowdon—Textile Rubber Company; plant	30,000
Ga., Dalton—American Thread Co.; mill building	75,000
Ga., Hapeville—Tyler & Company; printing plant	
Ga., Macon—Reynolds Corporation; fuse plant (government owned)	1,000,000
Ga., Palmetto—Palmetto Cotton Mill; addition	
Ga., Rome—Tubize Chatillon Corp.; boiler	
Ga., Savannah—Savannah Dr. Pepper & 7-Up Bottling Co.; plant	
Ga., Trion—Trion Mills; buildings	
Ky., Louisville—Westinghouse Electric & Mfg. Co.; naval ordnance plant (government owned)	5,000,000
La., Bogalusa—Gaylord Container Corp.; plant expansion	6,000,000
La., Harvey—Continental Can Co., Inc.; addition	
Md., Baltimore—Baltimore Paint & Color Co.; storage building	
Md., Baltimore—Bartlett Hayward Company; alterations	
Md., Baltimore—Bowen Company; building	
Md., Baltimore—Charles T. Brandt, Inc.; addition	35,000
Md., Baltimore—Furst Brothers Co.; storage building	
Md., Baltimore—Guila Manufacturing Co.; storage building	
Md., Baltimore—Maryland Dry Dock Co.; pier	750,000
Md., Baltimore—Rustless Iron & Steel Corp.; building	175,000
Md., Baltimore—Standard Plating Company; building	
Md., Baltimore—U. S. Industrial Chemical, Inc.; alterations	
Md., Frenchtown—Lancaster Iron Works; shipbuilding plant	
Md., Indian Head—E. I. duPont de Nemours & Co., Inc.; powder plant expansion (government owned)	3,490,000
Mo., Lake City (RFD from Buckner)—Remington Arms Co., Inc.; plant (government owned)	7,500,000
Mo., St. Louis—American Stove Company; factory	
Mo., St. Louis—Continental Can Co.; can plant	
Mo., St. Louis—Midwest Piping & Supply Co., Inc.; factory addition	30,000
Mo., St. Louis—Monsanto Chemical Co.; warehouse	200,000
Mo., St. Louis—War Department; small arms ammunition plant	11,819,400
N. C., Andrews—Nantahala Power & Light Co.; power project	
N. C., Charlotte—E. H. Jacobs Manufacturing Co.; textile machinery	
N. C., Siler City—Siler City Hosiery Co.; plant addition	
N. C., Wilmington—J. W. Jackson Beverage Co.; bottling plant	
N. C., Winston-Salem—Atlantic Greyhound Corporation; buses	1,200,000
N. C., Yanceyville—Caswell Knitting Mills; hosiery plant	50,000
S. C., Charleston—Charleston Linen Service; plant	60,000
Tenn., Chattanooga—Combustion Engineering Co., Inc.; warehouse	
Tenn., Milan—Procter & Gamble Defense Corp.; shell loading plant (government owned)	28,000,000
Tenn., Tullahoma—Tullahoma Ice & Coal Co.; plant expansion	
Tex., Amarillo—American Smelting & Refining Co.; plant	200,000
Tex., Baytown—Humble Oil & Refining Co.; tolul plant	12,000,000
Tex., Beeville—Continental Oil Company; bulk plant	
Tex., Bellaire—Texas Company; shop & garage	100,000
Tex., Fort Worth—Texas Steel Company; pattern shop	21,000
Tex., Houston—American Can Company; plant addition	500,000
Tex., Houston—Chicago Bridge & Iron Co.; buildings	
Tex., Houston—Lockwood Warehouse Co.; cold storage plant	
Tex., Houston—Petroleum Rectifying Co. of California; plant	50,000
Tex., San Antonio—Frito Company; addition	40,000
Tex., Sillsbee—Republic Production Co.; stabilization plant	15,832
Va., Harrisonburg—Rockingham Publishing Co.; plant	29,000
Va., Pulaski—Hercules Powder Co.; bag loading plant (government owned)	6,756,000
Va., Radford—Chesapeake & Potomac Telephone Co.; building	6,500,000

Contracts Proposed

Ala., Birmingham—Semet-Solvay Company; coke ovens	
Ala., Birmingham—Southeastern Greyhound Lines; bus station	
Ala., Brewton—Bonita Ribbon Mills; enlargement	300,000
Ala., Childersburg—Johnson & Johnson; smokeless powder & bag loading plant (government owned)	30,000,000
Ala., Grove Hill—James S. Pugh & Associates; cold storage plant	
Ala., Mobile—Alabama Dry Docks & Shipbuilding Co.; shipways	
Ala., Mobile—Alabama Power Co.; new construction	6,500,000

D. C., Washington—Capital Transit Co.; buses	550,000
D. C., Washington—Potomac Electric Power Co.; expansion program	10,000,000
Fla., Pensacola—Peninsular Oil & Refining Co.; gathering system	
Fla., Lakeland—Food Machinery Corp.; food machinery plant	
Fla., Miami—Intercontinent Aircraft Corp.; plant	2,500,000
Fla., Miami Beach—Florida Power & Light Co.; expansion	700,000
Fla., Pensacola—Diraplane Manufacturing Corp.; plant	
Ga., Atlanta—Patent Scaffolding Co.; building	
Ga., Atlanta—Swift & Company; refinery	
Ga., Savannah—Ballard & Ballard Co.; mill enlargement	75,000
Ga., Savannah—Mexican Petroleum Corp.; improvements	
Ky., Henderson—Allied Chemical & Dye Co.; ammonia plant (government owned)	11,000,000
Ky., Prestonsburg—Turner Elkhorn Coal Co.; coal mine	
La., Baton Rouge—Coca-Cola Bottling Co.; plant addition	
La., Shreveport—Shreveport Stockyards Co.; stockyard	
Md., Baltimore—Consolidated Gas, Electric Light & Power Co.; expansion program	8,655,811
Md., Baltimore—Pan-American Refining Corp.; plant	
Md., Baltimore—Cross & Blackwell Co.; factory addition	30,000
Md., Baltimore—Pan-American Refining Corp.; plant	
Md., Baltimore—Pepsi-Cola Bottling Co.; plant	
Md., Relay—Calvert Distilling Co.; barrel cooperage building	
Md., Sparrows Point—Bethlehem Steel Company; tin mill	
Md., Williamsport—Potomac Edison Company; plant improvement	55,000
Miss., Guntown—Oakes Chair Co.; factory	75,000
Miss., Hintonville—Resor Tung Plantations; tung oil plant	
Miss., Jackson—Moore-Reid Lumber Co.; sawmill	
Mo., Brentwood—Wright Specialty Manufacturing Co.; plant	50,000
Mo., Kansas City—W. S. Dickey Clay Manufacturing Co.; plant	
Mo., Kansas City—Kansas City Power & Light Co.; expansion	6,500,000
Mo., Kansas City—North American Aviation, Inc.; aircraft plant (government owned)	9,000,000
Mo., Robertson—Curtis Wright Corp.; boiler house, etc.	
Mo., St. Louis—General Brake Service Corp.; addition & alterations	
Mo., St. Louis—Missouri Pacific R. R.; equipment	1,550,000
Mo., St. Louis—Missouri Pacific System; improvements	9,671,250
Mo., Brentwood (St. Louis)—Wright Specialty Manufacturing Co.; factory	60,000
North Carolina—Carolina Power & Light Co.; generating plant	3,000,000
N. C., Charlotte—Swift & Company; refinery addition	40,000
N. C., Draper—Marshall Field & Co.; dye house	
N. C., Salisbury—Orange Crush Bottling Co.; plant	
N. C., Sanford—General Foundry & Machine Co.; foundry expansion	
N. C., Waynesville—Dayton Rubber & Mfg. Co.; plant	100,000
N. C., Wilmington—North Carolina Shipbuilding Corp.; shipyard	
Okl., Tulsa—Douglas Aircraft Corp.; bomber plant (government owned)	10,000,000
Tenn., Chattanooga—Southern Dairies, Inc.; expansion	20,000
Tenn., Clarksville—B. F. Goodrich Company; expansion	
Tenn., Copperhill—Tennessee Copper Co.; sulphuric acid plant	
Tenn., Memphis—Ready Foods Co., Inc.; plant	
Tenn., Milan—McAnulty Lumber Company; lumber yard	
Tenn., Union City—Brown Shoe Company; plant addition	
Texas—American Smelting & Refining Co.; zinc plant	
Texas—Shell Union Oil Corporation; butadiene plant	
Tex., Austin—Heep's Superior Dairies; building	
Tex., Corpus Christi—Borden Company; addition & alteration	
Tex., Crockett—Geier Brothers & F. B. Jackson; recycling plant	
Tex., Fort Worth—Consolidated Aircraft Corp.; bomber plant (government owned)	10,000,000
Tex., Galveston—Houston Lighting & Power Co.; improvement & expansion program	100,000
Tex., Galveston—Todd Shipyards Corp.; floating drydock (government owned)	2,254,342
Tex., Houston—Diamond Alkali Co. of Texas; chemical plant	
Tex., Houston—Houston Shipbuilding Co.; shipyard	
Tex., Houston—Texas Tin Corporation; tin smelter	
Tex., Longview—Madaras Steel Corporation of Texas; plant	
Tex., San Antonio—Johnson Shirt Company; factory	
Tex., San Antonio—S. E. Knowlton; creamery	
Virginia—Chesapeake & Potomac Telephone Co.; plant & equipment	
Va., Chatham—Chatham Knit-Wear Company, Inc.; knitting mill	1,353,000
Va., Fieldale—Appalachian Electric Power Co.; expansion	227,000
Va., Front Royal—Virginia Packing Co.; plant	100,000
Va., Lynchburg—Coca-Cola Bottling Works; Inc.; bottling plant	100,000
Va., Norfolk—Norfolk Southern Railroad; equipment	938,000
Va., Norfolk—Seaboard Air Line Railway; equipment	1,905,000
Va., Norfolk—Virginia Electric & Power Co.; addition	4,190,000
Va., Roanoke—Appalachian Electric Power Co.; transmission lines, sub-station, etc.	679,000
Va., Sandston—F-F-V Equipment Corporation; food cup container plant	200,000
W. Va., Weirton—Weirton Steel Co.; expansion	10,000,000
South—Continental Can Company; expansion	25,000,000
South-Pacific Fruit Express Company; equipment	15,500,000
South—Pennsylvania Railroad; equipment	17,500,000



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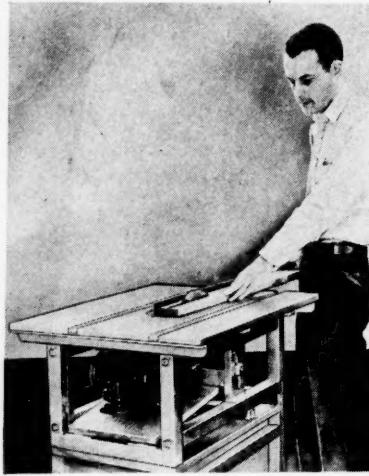


New Ways

of Doing Things

Portable Power Saw

As an addition to its line of larger all-metal Bearcat portable woodworkers, the Paxson Company, Dowagiac, Mich., announces the Build saw, designed for maintenance use, cutting in pattern or crating



room, or wherever a medium-sized production machine is needed. Portability with ruggedness is achieved by making all moving parts subject to wear of steel, with table top and frame of steel-tied wood construction. As the machine weighs only 65 pounds, less motor, one man may easily load it into the back or trunk of car or truck, or move it where needed. The top is 24 by 30 inches to accommodate standard-size lumber, and with regular equipment will rip, cut-off, mitre, groove, dado, etc. Motors from $\frac{1}{2}$ to 1 horsepower are supplied, and a 10-inch saw blade cuts to a 3-inch depth. To facilitate angle or bevel cutting, a special tilting ripping fence is available.

"Rex Junior" Centrifugal Pump

A new, light-weight, 3,000 GPH centrifugal pump weighing only 54 pounds has been introduced by Chain Belt Company of Milwaukee, Wis. Designated the "Rex Junior," this 1½-inch pump contains all engineering features of the standard line of Rex centrifugal pumps, including the patented Rex "peeler," a device that actually peels the air from the whirling impeller, it is claimed, and thus speeds up the prime. The unit has a large semi-steel recirculating water chamber equipped with an aluminum cap to save weight and is powered by a dependable, easy starting single cylinder, air cooled engine of $\frac{1}{4}$ to 1 horsepower. The engine is equipped with an automatic governor that speeds up the motor when the pump catches its prime and starts to lift water. This eliminates the possibility of putting too much strain on the power unit at low

speeds and assures economical performance. Designed primarily for the contractor to pump water from excavations and to keep seepage levels low on bridge jobs, etc., this little 3M water mover is also suitable for various other services. Overall dimensions of the pump are: length, 15½ inches; width, 11¾ inches, and height, 15¾ inches.

Lyon Assembler's Bench Bin

Permitting the concentration of large supplies of 12 different small parts, such as nuts, bolts, screws, cotter pins, springs and washers on a bench space of only 16 inches by 9 inches, the Lyon Assembler's Bench Bin, a new steel product, has been introduced by Lyon Metal Products, Incorporated, Aurora, Ill. Use of the bin speeds production by enabling the assembler to work without over-reaching or getting up to locate scattered parts. The 12 compartments are arranged in three capacity groups of four compartments each, affording larger capacities for big-



Bench Bin for Small Parts

ger or more frequently used parts. Loading compartment openings at the top of the bin are each 4 inches wide by 3 inches deep, and the hopper front openings are 4 inches wide by 3 inches high. The bin is of bolted and welded construction, 16½ inches wide by 9½ inches deep by 15 inches high, having a shipping weight of 19 pounds. The cover is attached to the unit with a strong continuous "piano" hinge to assure cover alignment.

CPHLS Pipe Line Filter

Adapting the well known "Radial Fin Construction," which has been successfully used in filters for air transmission lines and internal combustion engines, to the filtration of water, the Staynew Filter Corporation of Rochester, N. Y., announces a new water filter known as Model CPHLS. This new filter has already proven its value, it is declared, to paper

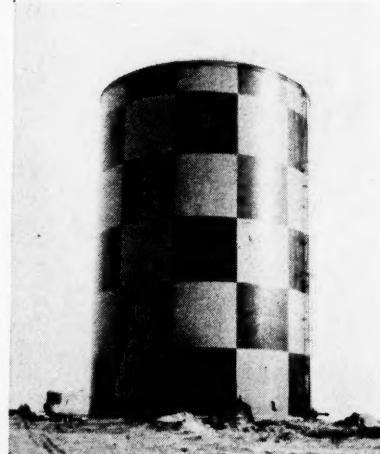
mills, users of hydraulic systems and humidifying apparatus, chemical plants, shirt factories, rolling mills and others. Of simple construction, filtering action is positive—all water passing through special fabric filter mediums having the advantages of high efficiency plus minimum restriction to water flow—advantages which are increased by the Radial Fin Construction, which permits a large area of filtering medium to occupy a relatively small space.

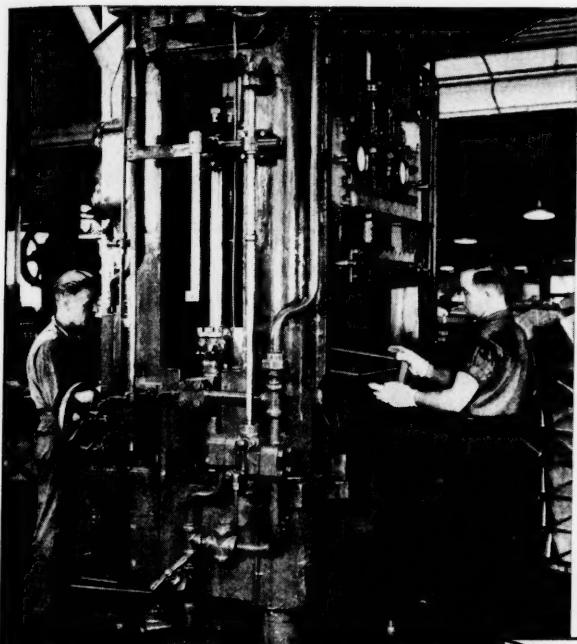
Improved Asbestos-Cement Wallboard

A new asbestos-cement wallboard developed by The Philip Carey Company, Lockland, Cincinnati, Ohio, is declared to possess valuable qualities that make it entirely different from other asbestos-cement wallboard. An outstanding characteristic of the new product is its workability which overcomes an objection common to this type of board. Made of asbestos fiber and Portland cement, the product is highly fire resistant and rot-proof. In addition, it affords protection against rodents and vermin and is unaffected by termites. The product is marketed under the trade name of Careystone Asbestos-Cement Wallboard, and is manufactured in sheets 3/16-inch, 1/4-inch, and 3/8-inch thick and in sizes 48 inches by 48 inches and 48 inches by 96 inches.

Welded Steel Standpipe

The MANUFACTURERS RECORD presents herewith an illustration of a welded steel standpipe recently built at Fort Jackson near Columbia, S. C., by the Chicago Bridge and Iron Company, Chicago, Ill. Fabricated at the Birmingham, Alabama, plant of the company and erected with the company's own field crew under the direction of the company foreman, E. L. Mosier, the structure is 60 feet in diameter by 88 feet 6 inches high and holds 1,845,000 gallons. It is painted with a checkerboard effect in accordance with Federal regulations governing structures on air lanes.





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From Side to Side

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FINANCE

» » » and « « « INDUSTRY

The Debt Limit

As Congress appropriates money increasing the size of the national debt, the Secretary of the Treasury says there must be a bill passed legalizing a higher debt limit or he cannot borrow the money necessary to meet the additional appropriations. The statutory limit, in other words, controls the amount he can borrow.

The President has said: "Congress, by making appropriations and levying taxes controls the size of the debt regardless of the existence of a statutory debt limit."

The Secretary of the Treasury asked the other day for a limit of not less than \$65,000,000,000, but this was later corrected by his assistant who wants to raise it \$3,000,000,000 more.

The President said that he questions the significance of the statutory debt limit because Congress makes the appropriations and levies taxes "except as it serves as a fiscal monitor."

Monitors are not without their uses. They guide and check and keep order, and are not bad things at all to have around.

A comparatively short time ago when the debt started to soar, bankers expressed the opinion the country could not go beyond \$50,000,000,000 Federal debt with safety. These are unusual times. Defense which is so necessary is going to take a lot of money, and as the MANUFACTURERS RECORD is saying elsewhere, for goodness sake let's cut out the unnecessary items of cost.

Railroad Earnings

Reports from railroads telling of earnings for the full year of 1940 are encouraging. In the month of December revenues advanced materially from an increasing volume of traffic, and it is fair to estimate that as industrial activity grows, the position of the carriers will improve in months to come.

This is interesting and important not only to investors in railroad securities, but to business generally which saw the difficulties railroads had experienced due to depression conditions and competition.

The Baltimore and Ohio reports the largest gross for any year since 1930. The Louisville and Nashville has a similar record, and the Virginian Railway gross and net are reported as the best in the road's history.

The Norfolk and Western had a net operating income which shows an increase of more than \$1,500,000 over 1939. The Missouri Pacific reported an increase of 40 per cent over the year before.

The Credit Situation

Banks are still complaining of the difficulty of earning money by making sound loans. Demands for credit, although stimulated by factory extension and new plants needed in defense work, have not been as numerous as might have been expected. In other words, the amount of borrowing from the bankers' standpoint is still far below normal.

With excess reserves around \$7,000,000,000, a record-breaking figure, there is a stupendous basis for inflationary credit. Not much has been heard lately about the safeguards that Mr. Eccles and the Federal Reserve System wanted to set up to guard against a situation that might get out of hand.

The gold we have purchased, amounting to three-fourths of the world's supply, still causes concern as to the use to be

(Continued on page 40)

We have helped

many businesses that have brought us their financial problems.

Correspondence invited.

BALTIMORE COMMERCIAL BANK

Gwynn Crowther, President

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Finance and Industry

The Credit Situation

(Continued from page 38)

made of it. Run-away markets and rapid rises in prices have been built on much smaller foundations.

The money of the country today is not convertible into gold on demand, and in view of the President's power to further devalue the dollar, the question will not down as to what our money is to be worth in the future. From many standpoints it is well to have in mind the desirability of returning to the gold standard as soon as it is expedient.

Face the Issue

The government is spending billions more than it is taking in. This has been going on for years, but the immediate necessity of the defense program has made the situation more acute.

It is estimated that in 1941 receipts will be short of expenditures by over \$9,000,000,000. Something will have to be done about it, and at once, or the country will go on the rocks of inflation that is horrible to contemplate. It is better to tell the people the truth now and get them ready for the taxation that is bound to pinch until it hurts, than to fool them by an appearance of prosperity which will be worth very little if the dollar's purchasing value turns out to be only a small fraction of what it is at present.

One form of taxation that the politicians have thrust aside is the sales tax, which should be applied horizontally across the whole list of articles purchased with the possible exception of food and clothing. It should apply at the point of final purchase and be considered immediately by the Senate Finance Committee now giving study to the whole revenue raising situation.

This publication has advocated such a tax for years, and in our judgment there is no sound argument against it, and more particularly is this true now. Taxation, the cost of defense, the emergency into which the whole world has been thrust should be brought home to every citizen. They will work harder and gain a keener appreciation of the needs of the hour by such a course than they would otherwise.

Cut out needless expense and face the issue squarely now of what is necessary to pay our bills, rather than face the alternative which is chaos.

The Spread of Spending

While many businesses are not immediately affected by defense orders, contracts of such magnitude are being placed that business activity before long undoubtedly will cover a much wider range of lines than it does at present.

Wage earners incomes are growing especially because of over-time work, and this is particularly true where government camps, flying fields and other defense contracts have been placed. Building of medium priced houses has been increasing steadily and it may be expected that with growing demand there will be a tendency for consumers goods to increase in price as manufacturers give more and more attention to defense needs.

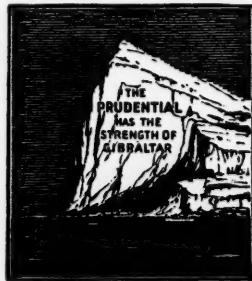
It is already suggested in government quarters that the automobile industry soon will be required to give more time to the production of arms which presumably would lessen the output of automobiles.

The efforts to control prices under such circumstances are praiseworthy, but whether they will be effective or not remains to be seen. When demand exceeds supply, or when money is plentiful, prices inevitably tend to advance.

Your Family's Defense Program

Safest protection against economic distress, for the business man's wife and children: **adequate insurance on his life.**

Ask about our many low cost policies.



The Prudential
Insurance Company of America
Home Office, NEWARK, N.J.



*Every year The Wall Street Journal carries more advertising, and serves more advertisers, than any other national publication for business executives.**

What do these advertisers get for their money?

1. Sure contact at low cost with active management-executives of substantial businesses.

2. Point-of-sale contact with these executives, because 86 per cent of them read The Wall Street Journal in their offices at their desks. (Here secretary, telephone and buzzer are at hand to convert interest in your advertisement into action.)

** 872 advertisers used over 1,000,000 lines of space in The Wall Street Journal during 1940.*

INDUSTRIAL NEWS

Southern Textile Exposition

The 14th Southern Textile Exposition will be held at Textile Hall, Greenville, S. C., from March 31 to April 5, 1941, inclusive, according to an announcement by the Textile Hall Corporation. Bulletin No. 1, with important information for exhibitors, has been issued by the Corporation and this will be followed by another bulletin with information relating to arrangement of exhibits, meetings during the show, and other details.

Timber Connector System of Construction

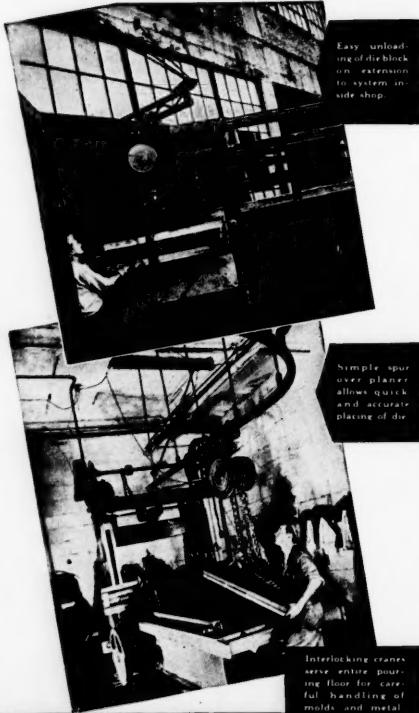
To meet a demand of engineers, architects and contractors for data on the use of the

timber connector system of construction in light and heavy lumber structures, Maxwell and Hitchcock, engineers of Atlanta, Ga., announce an extension of their operations covering both Georgia and Alabama. Operating under the trade name of The Timber Engineering Company of Georgia and Alabama, the firm will specialize in the sale of the Tecu system of timber construction. During the past seven years, it is said that timber connector construction, which is declared to produce a stronger and more economical structure, has accounted for more than 20,000 buildings of all types. Southern industrial users have found it particularly applicable for warehouse roof truss construction, army cantonment construction, railway structures and bridges, etc.

Simple Methods for stepping up DEFENSE PRODUCTION

With a surging demand for greater output, plants operating on defense materiel use every possible means to obtain it. It is no wonder that these plants are rapidly installing overhead handling equipment to relieve floor congestion — to gain time through process aids — or to conserve skilled manpower by eliminating handling fatigue.

Simple systems as shown here are quickly and inexpensively applied wherever a short cut is needed. American MonoRail engineers can spot these places in a short survey of your plant. They will then offer a detailed proposal which does not obligate you in any way. Why not give them a chance to help push along your defense production?



THE AMERICAN MONORAIL COMPANY

13120 Athens Ave. Cleveland, Ohio

Buckeye Traction Ditcher Appointment

The Buckeye Traction Ditcher Company of Findlay, Ohio, announces the appointment of the Brandeis Machinery & Supply Company, Inc., Louisville, Ky., as distributors of Buckeye Road Wideners, Spreaders, Trenchers, and R-B Finegraders.

Walker Electrical Co. Moved to New Location

With a considerable increase in manufacturing facilities, the Walker Electrical Company, manufacturers of electrical specialties, have moved their business to a new plant and office building at 634 Anton Street in the Northside section of Atlanta, Georgia. In this locality other prominent electrical manufacturers are said to be building new plants, offering service to the electrical industry.

R. M. Walker is President and Treasurer, and T. J. Fleischer is Vice-President in Charge of Sales.

W. D. Murphy Connects With Advertising Agency

W. D. Murphy, advertising manager of Sloan Valve Company and vice-president of the National Industrial Advertisers Association, has joined Reinicke-Ellis-Younggreen & Findley, advertising agency, Chicago, in an executive capacity. Mr. Murphy is the author of a series of articles now appearing in Industrial Marketing on the subject, "An Engineering Approach to Industrial Advertising." His writings have appeared also in other publications devoted to advertising and selling. Coincident with his well-rounded business experience, Mr. Murphy has taken an active part in organization work, serving as president of the Engineering Advertisers Association and as a member of the Board of Governors of the Chicago Federated Advertising Club.

Cooper-Bessemer Personnel Changes

B. B. Williams has resigned as president of The Cooper-Bessemer Corporation, Mount Vernon, Ohio, and Charles B. Jahnke has been elected his successor, according to a recent announcement. Mr. Williams was made chairman of the board of directors, succeeding Dr. E. J. Fithian of Grove City, Pa., who resigned. Dr. Fithian, who is one of the founders of the Bessemer Gas Engine Company and its president for several years, will continue as a member of The Cooper-Bessemer Corporation board of directors.

Mr. Jahnke has been with Cooper-Bessemer since 1935, having served 2½ years as chief engineer and since July 1937, as vice-president and general manager. He was graduated from the University of Cincinnati in 1910 and has an extensive background in Diesel engineering work. Mr. Williams, who will continue in an active capacity as head of the Corporation, has been with The Cooper-Bessemer Corporation and its predecessor, the C. & G. Cooper Company, for forty years. He became president of the Cooper Company in 1920 and retained the position when that company merged in 1929 with Bessemer to form the present corporation.

Robinson Manufacturing Company Opens Philadelphia Office

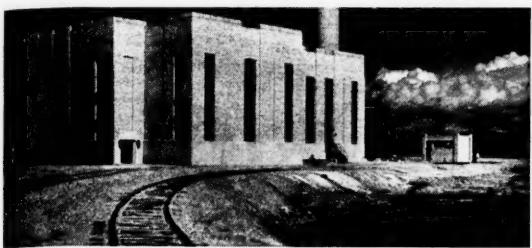
Robinson Manufacturing Company, Muncey, Pa., engineers and machinery builders, recently announced the opening of another service and sales office in the East—Room 124, Commercial Trust Building, Philadelphia, Pa.—in charge of R. V. Schneider who has been engaged for a number of years in the company's Engineering Department at Muncey. Mr. Schneider is a graduate of Pennsylvania State College in Mechanical Engineering, and is well versed in the installation and operation of the Robinson line of crushers, cutters, grinders, pulverizers, sifters, mixers, elevators, conveyors and general material handling equipment. J. A. Krim is vice-president and sales manager of the company.

American Chain and Cable Company Appointment

George B. Kutz, who has been associated with American Chain and Cable Company, Inc., of York, Pa., for many years, was recently appointed District Sales Manager for the southeastern territory of Wright Manufacturing Division of American Chain and Cable Company, Inc., manufacturers of Wright Hoists, Cranes, Trolleys and Electric Hoists. For several years Mr. Kutz was District Sales Manager at Chicago for the American Chain Division, but more recently he has made his headquarters at York. In his new position, he will probably be located in Atlanta.

MANUFACTURERS RECORD FOR

**MORE POWER
to SOUTH TEXAS!**



Designing Engineers:
Sargent & Lundy, Inc.

Insulation Contractor:
Warren W. Bates, Houston

THE Nueces Bay Power Station, with a present capacity of 15,000 K. W., and designed for an ultimate capacity of 60,000 K. W., was built to serve the growing power needs of Corpus Christi and surrounding territory. The station is used as a base load plant and is connected with the transmission system of the Central Power and Light Company, serving South Texas.

This modern plant was designed to provide service in case of tropical storms which are prevalent on the gulf coast. Buildings and chimney are designed for a wind velocity of 130 miles per hour.

The station is CAREY insulated throughout, the backbone of the insulation being CAREY 85% MAGNESIA AND HI-TEMP.

Whether you plan power plant modernization or new construction, make sure of maximum operating economy by using CAREY insulations. Write today for CAREY insulation catalog—address Dept. 61.

THE PHILIP CAREY COMPANY • Lockland, Cincinnati, Ohio
In Canada: The Philip Carey Company, Ltd., Office and Factory, Lennoxville, P.Q.

**Carey Magnesia-Asbestos
HEAT INSULATIONS**



LYONORE METAL will

STAND THE TEST



Proper use of the brake on galvanized Lyonore Metal allays the fear of flaking or peeling, because this famous Chromium, Nickel, Copper, Iron alloy sheet possesses a uniform close grain that grips the speckle coating firmly. Sharp corners and intricate shapes are easy. This alloy sheet provides remarkable corrosion-resistance and long life. Use genuine Lyonore Metal for all sheet metal requirements!

Lyon, Coklin & Co., Inc.

WASHINGTON

BALTIMORE

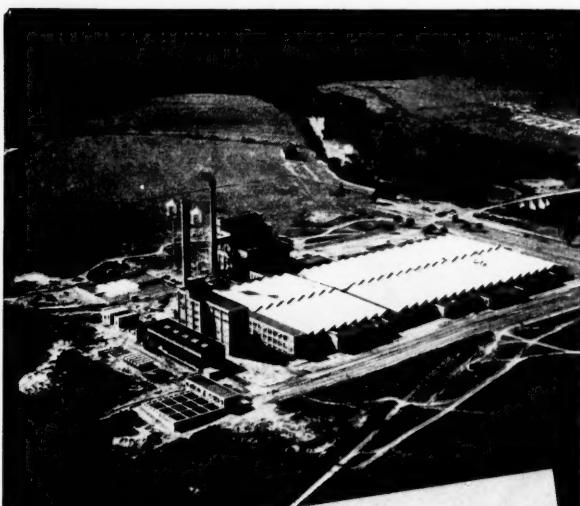
Lyonore Metal

CHROMIUM - NICKEL - COPPER - IRON ALLOY

**TO PLAN
TO BUILD
TO SHORTEN TIME**

In this hour of urgency, call upon the experience of the ablest to convert your need for productive capacity into sound plans that transcend the drawing board to rise as mobilized masonry, steel and machines.

Here, in a balanced organization, you will find forty years of seasoned and broad engineering experience that will get your program planned and executed quickly and smoothly.



**J.E. SIRRINE
& COMPANY**
Engineers
GREENVILLE  SOUTH CAROLINA

INDUSTRIAL PLANTS • PAPER MILLS • TEXTILE MILLS • PLANS AND DESIGNS

STEAM UTILIZATION • TOBACCO FACTORIES • KNITTING MILLS • LOCATION STUDIES

APPRAISALS • REPORTS • WATER TREATMENT • WATER SUPPLY • SURVEYS • POWER

TRADE LITERATURE

LIFTING DEVICES—

Catalog—32 pages, devoted to all types of lifting and hoisting devices for use in factories, warehouses, stores and machine shops, etc.

Economy Engineering Company, Chicago, Ill.

ARC WELDING CONSTRUCTION—

Booklet—"Arc Welding For Building Construction," 16 pages, illustrated, presenting an interesting review of how welding decreases the weight and cost of structural steel; how it saves material in structural connections; provides greater freedom in architectural and structural design, and points out many other advantages of welding in building construction.

Air Reduction, 60 East 42nd Street, New York City.

AUTOMOBILE PISTON RINGS—

Leaflet—Illustrated, explaining types of automobile piston rings used to restore performance in cars with various cylinder wear conditions.

Koppers Company, American Hammered Piston Ring Division, Pittsburgh, Pa.

SCALE PREVENTION—

Bulletin No. 12—presenting engineering specifications for installing the Activator Process of scale prevention, including blue-print floor diagrams, with summaries of case histories typical of the wide scope of application of the Activator method in prevention of scale formations in boilers, heaters, water jackets, cooling towers, condenser tubes, etc.

Activator Process Sales Company, Alhambra, Cal.

1941 Santa Fe Calendar—Through the courtesy of M. L. Lyles, Assistant to the President, The Atchison Topeka and Santa Fe Railway Company, and James L. Merrick, Special Representative, Public Relations, Santa Fe System Lines, both Chicago, the Manufacturers Record has received an attractive 1941 calendar showing a reproduction of the painting, "Navajo Shepherdess" by Gerard Curtis Delano of Denver and Kremmling, Col.

CONVEYOR BELT—

Booklet—12 pages, illustrating and describing construction details and varied types of operation of the Goodrich Cord Conveyor Belt.

The B. F. Goodrich Company, Akron, Ohio.

CASTERS AND WHEELS—

Manual—"Darnell Caster and Wheel Manual," presenting a detailed history of the Darnell Caster, with complete data, specifications, etc., on their design and construction.

Darnell Corporation, Ltd., Long Beach, Calif., Chicago, Ill., and New York, N. Y.

FRICITION FIGHTER BEARINGS—

Book No. 1775—"Link-Belt Friction Fighter Bearings," devoted to Link-Belt Friction Fighter Bearings (the Friction Fighter term being substituted for "anti-friction," since it "more aptly describes the function of a roller or ball bearing in industrial power transmission service"); publication presents complete tables of sizes, dimensions, weights, list prices, etc.

Link-Belt Company, Chicago, Ill.

DELIVERY UNIT HEATERS—

Catalog No. 140-E—32 pages, illustrating and describing the Modine line of Horizontal Delivery Unit Heaters, including a discussion of modern industrial heating and unit heater design, with complete engineering data, and other information;

Catalog No. 140-D—16 pages, devoted to the Modine line of Vertical Delivery Unit Heaters, with complete engineering data.

Modine Manufacturing Company, Racine, Wis.

Directory of Members of Association of Chemists and Chemical Engineers—

Designed to help all who need chemical advice or service, the Sixth Edition of the Directory of Association Members has been issued by the Association of Consulting Chemists and Chemical Engineers, Inc., 50 East 41st Street, New York City. In Section 1, the consultants and the directors of analytical and testing laboratories who are members have described the kind of service they are prepared to render and their qualifications, while Section 2 is a subject index offering a quick means of selecting those members who are specially or generally qualified upon any definite subject. Among the men listed in the Directory, some are best described as general practitioners, and others as specialists in various fields.

NOT A PENNY for MAINTENANCE



*Cairo Approach N. Y. State Hy. Dept.
Catskill, N. Y.*

The above KERLOW BRIDGE FLOOR was installed in 1936. Engineers report Kerlow flooring has been free of all maintenance, even including snow removal. For your next Bridge Floor (old or new) specify KERLOW proven floors.

All types of Industrial Floors and Safety Steps.

Agents in all principal cities.

Write for special technical data

KERLOW STEEL FLOORING CO.
218-C Culver Ave., Jersey City, N. J.
Telephone BErgen 4-5560

LANCASTER TANKS

Elevated Tanks

Pressure Tanks

Steel Storage Tanks

Process Tanks

Butane—Propane Tanks

Standpipes

Retorts

Bins

Extractors

Barges

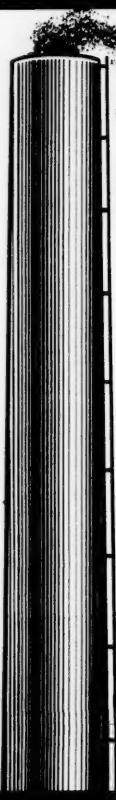
Dredge Pipe and Accessories

Welded Pipe

Riveted Pipe

*General Steel Plate Construction
designed for your requirements.*

Lancaster Iron Works Inc.
Lancaster, Pa.



SMOKE STACKS

Another Cole Product

Our various fabricated COLE steel products also include Smokestacks and Standpipes and you'll find them to stack up to your needs in every way. These stacks made to specification from your designs or ours, which our Engineering Department will gladly furnish. Put your Stack—also stack of problems—up to us.

OTHER COLE PRODUCTS ARE:

Tanks and Towers	Nickel-clad and Stainless Steel Vessels
Bins and vats	Welded Steel Pipe
Kettles and Kiers	Heavy pressure vessels
Boilers and Engines	Fabricated framework
Air Receivers	

Write for "Tank Talk"—No. 9-D.

Tank Builders For Over 80 Years!

R.D. COLE MFG.CO.
NEWNAN ... GEORGIA

SOUTHLAND PRODUCTS

—WELDED OR RIVETED—



We now manufacture and offer to the trade tanks in all sizes for pressure or gravity work. Also other steel equipment of either

WELDED OR RIVETED CONSTRUCTION

This applies to field as well as shop built equipment.

Write us for information and quotations.

CHATTANOOGA BOILER & TANK CO.
CHATTANOOGA, TENN.

DAVIS CYPRESS WATER TANKS

LIVE UP TO EVERY CLAIM

New plants coming South naturally install our cypress tanks, once for all for cypress lasts indefinitely. We can submit plenty of evidence from paper, pulp, dye, and knitting mills, etc. Send us your inquiries for wood pipe. Let us hear from you.

G. M. DAVIS & SON
P. O. Box 5,
Palatka, Fla.



CREOSOTED PILEING, POLES, LUMBER, TIES CROSS ARMS and CONDUIT

ALSO

WOLMANIZED AND CHROMATED ZINC CHLORIDE
TREATED LUMBER

Decay and Termite Proof—Can Be Painted

Docks for Ocean Vessels

American Creosote Works, Inc., New Orleans, La.
Atlantic Creosoting Co., Inc.

NORFOLK

SAVANNAH

NEW YORK

Plants at: New Orleans; Winnfield, La.; Louisville, Miss.
Savannah, Ga.; Jackson, Tenn., and Norfolk, Va.

NEW Sewer and Culvert Construction

By making concrete pipe on the job with Quinn Forms you give more men more work, can use less experienced labor and produce uniform concrete pipe of highest quality. Recognized standard of all concrete pipe.

QUINN PIPE FORMS



Quinn Heavy Duty and Medium Duty Pipe Forms best for hand or wet process pipe. Give more years of service. All diameters—12 to 84 inches. Tongue and groove or bell end pipe, any length.

WRITE for New Book on Concrete Pipe giving information and prices, valuable tables on production costs, strength tests. Pipe Forms, Pipe Machines, etc. Book sent free.

QUINN WIRE & IRON WORKS 1605 12 St. Boone, Iowa

A 26-year-old Sales Story

Told 1½ BILLION TIMES!



For hundreds of manufacturers the familiar ARMCO label is a veteran sales-aid that helps make cash registers ring. Affixed to their products, this symbol of finest metal quality inspires confidence in buyers. It's a big lift to dealers too.

This is why: In the 26 years that manufacturers have been using the ARMCO label, the ARMCO triangle trademark has been reproduced 1½ billion times in national and trade magazine advertising. Added to this are countless millions of radio impressions.

In 1941, for example, the ARMCO triangle trademark will be seen in magazines more than 100 million times. That's real sales power for you. Picture the influence of this silent salesman on every one of your metal products. Why not draw from ARMCO's tremendous backlog of national prestige in your current sales program? It costs you nothing to use the ARMCO label. Ask us about it. Write to The American Rolling Mill Company, 121 Curtis Street, Middletown, Ohio.



THE ARMCO LABEL

... 26 YEARS OLD

National Defense Program Awards in the South

(Continued from page 30)

Qtmtr. Corps	Baker-Lockwood Mfg. Co., Kansas City	11,000 Pyramidal Tents	150,06
" "	Oberman & Co., Springfield	80,000 O. D. Flannel Shirts	15,52
Ordnance	Crawford Mfg. Co., Inc., Kansas City	Covers for Small Arms	15,38
Qtmtr. Corps	Frank & Meyer Neckwear Co., St. Louis	210,000 Black Woolen Neckties	49,00
" "	Fruin-Colon Contracting Co. & Frisco Construction Co., St. Louis; Massman Construction Co., Kansas City; (Architects & Engineers: Giffels & Vallet, Detroit, Mich.; A. J. Brandt, Inc., Detroit, Mich.; Mauren, Russell, Crowell & Mullgarot, St. Louis)		
Ordnance	A. Leschen & Sons Rope Co., St. Louis		
Qtmtr. Corps	Baker-Lockwood Awning & Tent Co., Kansas City		
" "	Ely-Walker Dry Goods Co., St. Louis		
" "	A. F. Martin Mfg. Co., Tipton		
" "	Baker-Lockwood Awning & Tent Co., Kansas City		
Supplies & Aects.	Midwest Piping & Supply Co., Inc., St. Louis		
NORTH CAROLINA			
Qtmtr. Corps	Elliott Knitting Mills, Catawba	Tan Cotton Socks, 300,000 pairs	38,803
" "	Maurice Mills Co., Taylorsville	Tan Cotton Socks, 200,000 pairs	25,900
" "	Waldensian Hosiery Mills, Valdese	Tan Cotton Socks, 800,000 pairs	101,250
" "	O. E. Kearns & Son, Inc., High Point	Tan Cotton Socks, 200,000 pairs	25,900
" "	Regan Knitting Co., Thomasville	Tan Cotton Socks, 464,000 pairs	60,400
" "	Tip-Top Hosiery Mills, Inc., Asheboro	Tan Cotton Socks, 400,000 pairs	51,480
" "	Triangle Hosiery Co., High Point	Tan Cotton Socks, 300,000 pairs	39,000
" "	Thomas Mills, Inc., High Point	Tan Cotton Socks, 480,000 pairs	61,728
" "	Silver Knit Hosiery Mills, High Point	Tan Cotton Socks, 480,000 pairs	61,680
" "	Amos Hosiery Mills, High Point	Tan Cotton Socks, 500,000 pairs	64,625
" "	Crescent Knitting Co., Statesville	Black Cotton Socks, 84,320 pairs	9,950
" "	J. J. Devitt Co., Charlotte; V. B. Higgins, Greensboro; F. N. Thompson, Charlotte; and E. W. Grammis, Fayetteville. (Architects & Engineers: W. S. Lee Engineering Corp., Charlotte; and William M. Platt, Durham)		
" "	The Corbitt Company, Henderson	Anti-Aircraft Firing Center, Wilmington	8,612,495
" "	Quality Mills, Inc., Mount Airy	Trucks	1,460,000
" "	Erwin Cotton Mills, Cooleemee	Bleached Sleeveless Summer Undershirts, 200,000	31,040
" "	American Bleached Goods Co., Biltmore	Khaki Cotton Cloth, 150,000 yds.	32,625
" "	Cone Export & Commerce Co., Greensboro	Khaki Cotton Cloth, 100,000 yds.	20,500
" "	Mt. Airy Knitting Co., Mt. Airy	Khaki Cotton Cloth, 965,000 yds.	75,000
" "	P. H. Hanes Knitting Co., Winston-Salem	Cotton-Wool Mixed Undershirts, 30,000 Drawers, 18,000	26,633
Supplies & Aects.	Marshall Field & Co., Mfg. Div., Spray	Woolen Blankets	34,196
" " "	American Hardware & Equipment Co., Charlotte	Woodworkers Chisels	186,900
Qtmtr. Corps	Carolina Awning & Tent Co., Rocky Mount	1,161 Pyramidal Tents, with Bags	7,154
" "	Erwin Cotton Mills Co., Cooleemee	110,000 Cotton Cloth	16,254
" "	Dize Awning & Tent Co., Winston-Salem	6,000 Pyramidal Tents	32,956
" "	Carolina Awning & Tent Mfg. Co., Rocky Mount	1,000 Pyramidal Tents	75,720
" "	Hampton Shirt Co., Inc., Kinston	108,000 Khaki Cotton Shirts	14,000
			105,430
OKLAHOMA			
Qtmtr. Corps	Patterson Mfg. Co., Miami	Denim Working Trousers, 50,000 pairs	41,250
SOUTH CAROLINA			
Qtmtr. Corps	Southern Worsted Corp., Greenville	O. D. Light Shade Serge Cloth, 100,000 yds.	264,800
" "	John C. Heslep, Columbia; & C. Y. Thomason Co., Greenwood (Architects & Engineers: Lafaye, Lafaye & Fair, Columbia)	Charleston, South Carolina—General Hospital Construction Work	1,344,316
" "	Eddington Fabrics Corp., Travellers Rest	Khaki Cotton Cloth, 1,000,000 yds.	209,450
" "	Superior Duck Cloth Co., Travellers Rest	Khaki Cotton Cloth, 100,000 yds.	21,453
" "	Pacific Mills, Lyman	Khaki Cotton Cloth, 100,000 yds.	20,950
" "	Reeves Brothers, Inc., Graniteville	Khaki Cotton Cloth, 965,000 yds.	195,593
" "	Graniteville Co., Graniteville	Khaki Cotton Cloth, 1,100,000 yds.	225,500
" "	G. & G. Textile Co., Graniteville	Khaki Cotton Cloth, 200,000 yds.	41,858
Supplies & Aects.	Southern Weaving Co., Greenville	Linen Webbing	21,591
Bureau of Ships	Charleston Navy Yard	2 Destroyers	12,669,244
Qtmtr. Corps	Graniteville Co., Graniteville	875,000 Cotton Cloth	246,488
" "	Riegel Textile Corp., Ware Shoals	200,000 Cotton Cloth	57,500
" "	Nantex Mfg. Co., Greenwood	20,000 yards Mosquito bars	14,763
" "	Graniteville Co., Graniteville	100,000 yds. Cotton Cloth	27,700
TENNESSEE			
Qtmtr. Corps	Margate Hosiery Mills, Chattanooga	Tan Cotton Socks, 200,000 pairs	25,800
" "	O'Bryan Bros., Inc., Nashville	Denim Working Trousers, 120,000	105,336
" "	Knoxville Awning, Tent & Tarpaulin Co., Inc., Knoxville	Mattress Covers, 25,000	24,255
" "	A. L. Kornman Co., Nashville	Woolen Service Coats, 10,000	39,321

(Continued on page 48)

The Arundel Corporation

BALTIMORE, MD.

**Dredging—Construction—Engineering
Distributors of Sand - Gravel - Stone and
Commercial Slag**

A COMPLETE ORGANIZATION

Our complete organization with years of experience in successfully executing large construction contracts of various kinds is prepared to undertake the construction of earth, masonry and concrete dams, drydocks, dredging of all kinds, river and harbor improvements, deepening channels, hydraulic filling and rock work, tunnels, railroad construction, sewers and waterways.

PERSONNEL:

JOSEPH V. HOGAN, President	C. WARREN BLACK, Vice-President in Charge of Engineering and Construction
RICHARD A. FROEHLINGER, Executive Vice-Pres. & Treas.	JOSEPH G. KUHN, Vice-President in Charge of Dredging
W. BLADEN LOWNDES, Vice-President	GEORGE H. BACOT, Vice-President in Charge of Materials' Production
JOSEPH N. SEIFERT, Secretary & Asst. Treas.	JOHN A. REILLY, Vice-President in Charge of New York & New England Areas.
E. L. WADE, Assistant Secretary	
T. K. SHAUGHNESSY, Assistant Secretary	

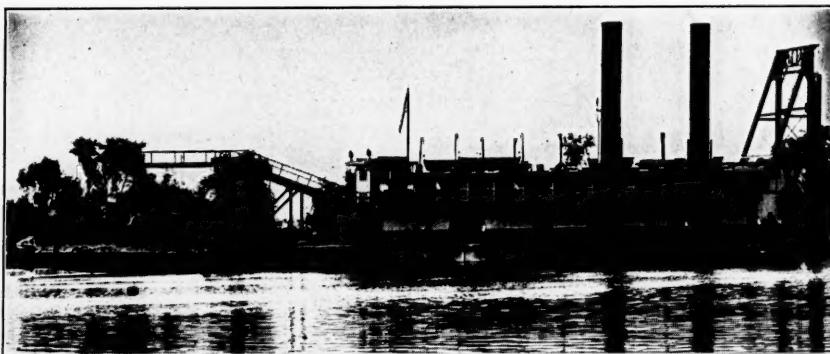
MAIN OFFICE: Arundel Building, Pier 2, Pratt Street

BALTIMORE, MD.

Branches: BROOKLYN, N. Y.—MIAMI, FLA.

DREDGING

**FILLING, LAND RECLAMATION, CANALS, PORT WORKS
RIVER AND HARBOR IMPROVEMENTS—DEEP WATERWAYS AND SHIP CHANNELS**



We are especially equipped to execute all kinds of dredging,
reclamation and port works in Southern waters.

Correspondence invited from corporate and private interests everywhere.

Contractors to the Federal Government

ATLANTIC GULF AND PACIFIC CO.
NEW YORK: 15 Park Row HOUSTON, TEXAS: Scanlan Building

150,06
15,52
15,38
49,09

11,819,40
4,123
7,088
295,600
50,222
62,395
16,548

38,807
25,960
101,260
25,960
60,400
51,480
39,000
61,728
61,680
64,625
9,950

8,612,495
1,460,000

31,040
32,625
20,500
75,000
26,633

34,196
186,900
7,154
16,254
32,956
75,720
14,000
105,430

41,250

264,800

344,316
209,450
21,450
20,950
95,593
25,500
41,888
21,591
69,244
46,488
57,500
14,763
27,700

5,800
5,336
4,255
9,321

OR

FEBRUARY NINETEEN FORTY-ONE

47

National Defense Program Awards in the South

(Continued from page 46)

Qtmtr. Corps	Appalachian Mills Co., Knoxville	Cotton-Wool mixed Undershirts, & Drawers, 36,000	66,240
" " " Ordinance	Standard Knitting Mills, Knoxville	Cotton-Wool mixed Undershirts, 48,000	41,016
	Procter & Gamble Defense Corp., Cincinnati, Ohio.....	(a) For the operation of an Ammunition Loading Plant to be known as the Wolf Creek Ordnance Plant near Humboldt	24,720,000
		(b) For the Procurement of Equipment and for Management Services during the Construction of the new Plant	3,585,600
Qtmtr. Corps	Anderson-Tully Co., Memphis	1,500,000 Tent Pins	39,825
" " "	Nashville Tent & Awning Co., Nashville	3,000 Pyramidal Tents, with Bags ..	38,700
" " "	Knox Stove Works, Knoxville	13,000 Cast Iron Griddles	33,800
" " "	Gray & Dudley Co., Nashville	19,000 Cast Iron Griddles: Kitchenware	54,210
" " "	Southern Mfg. Co., Nashville	90,000 O. D. Flannel Shirts	45,000
" " "	Stetson Shirt Co., LaFollette	50,000 O. D. Flannel Shirts	24,377
" " "	Knoxville Awning, Tent & Tarpaulin Co., Knoxville....	2,500 Tent Storage Flies	3,500
TEXAS			
Qtmtr. Corps	Hicks-Hayward Co., El Paso	Denim Working Trousers, 75,000	60,689
" " "	Williamson-Dickie Mfg. Co., Ft. Worth	Denim Working Trousers, 150,000	127,181
" " "	Conro Mfg. Co. of Texas, Dallas	Denim Working Trousers, 150,000	124,376
" " "	Dallas Association for Blind, Dallas	Bleached Cotton Pillowcases, 35,000	7,525
	Kuhn Paint & Varnish Company, Houston	63,377 Gallons of Paint for Camp Bowie, Brownwood, Replacement Center, Galveston, Camp Wolters, Mineral Wells & Camp Hulen, Palacios	94,071
" " "	Truehart & Caldwell, San Antonio	Cast Iron Water Lines at Fort Sam Houston	62,430
" " "	Sunshine Clothing Mfg. Co., San Antonio	Khaki Cotton Trousers, 7,500	4,158
" " "	Hawk & Buck Co., Inc., Waco	Khaki Cotton Trousers, 20,000	12,970
" " "	J. M. Wood Mfg. Co., Waco	60,000 Khaki Cotton Trousers	38,062
" " "	Conro Mfg. Co., of Texas, Dallas	500,000 Khaki Cotton Trousers	324,675
" " "	Waco Garment Mfg. Co., Waco	50,000 Khaki Cotton Trousers	35,464
" " "	Haggard Co., Greenville	100,000 Khaki Cotton Trousers	70,645
" " "	Dickson-Jenkins Mfg. Co., Fort Worth	36,000 Khaki Cotton Trousers	21,510
Supplies & Accts.	Seabrook Yacht Corp., Seabrook	Hull & Fittings for Submarine Chasers	270,000
" " "	Westergard Boat Works, Inc., Rockport	Hull & Fittings for Submarine Chasers	240,628
Yards & Docks	Todd Galveston Dry Docks, Inc., Galveston	Acquisition, Construction and Installation of Additional Plant Facilities Est. Cost	2,254,343
" " "	Houston Shipbuilding Co., Houston	Six ways. Est. Cost	4,680,000
VIRGINIA			
Qtmtr. Corps	Blue Ridge Overalls Co., Roanoke	Denim Working Trousers, 470,000	394,405
" " "	Craddock-Terry Shoe Corp., Lynchburg	Service Shoes, 75,000 pairs	250,500
Ordnance	Hercules Powder Company, Wilmington, Del.	For Architectural & Engineering Services, Procurement and Installation of Equipment, and the Operation of a Bag Loading Plant to be Located near Pulaski	6,756,399
"	Roanoke Mills, Inc., Roanoke	Bleached Sleeveless Summer Undershirts, 540,000	85,050
"	Royal Silver Mfg. Co., Norfolk	Field Accessories for Ranges, 51,000	30,345
"	N. & W. Overall Co., Inc., Lynchburg	One-Piece Working Suits, 12,000	12,210
Bureau of Ships	Norfolk Navy Yard	2 Destroyers	12,669,244
Supplies & Accts.	Gary Steel Products Corp., Norfolk	Barrels	102,975
" " "	The Proctor & Gamble Distributing Co., Portsmouth...	Vegetable Shortening	318,387
Qtmtr. Corps	Emporia Mfg. Co., Emporia	345,000 Tent Pins	9,631
" " "	Old Dominion Mfg. Co., Norfolk	3,500 Pyramidal Tents, with Bags ..	45,325
"	Penna. Box & Lumber Co., Winchester	250,000 Tent Poles	78,700
"	Miller Mfg. Co., Inc., Richmond	345,000 Tent Poles	109,706
"	Portsmouth Tent & Awning Co., Portsmouth	3,000 Pyramidal Tents	38,250
"	J. W. Hurst & Son Awnings, Inc., Norfolk	6,000 Pyramidal Tents	77,250
"	Norfolk Tent & Awning Supply Co., Inc., Norfolk	6,500 Pyramidal Tents	84,600
"	Hudgins-Dize Co., Inc., Norfolk	1,500 Pyramidal Tents	21,000
Ordnance	The Tredegar Company, Richmond	Artillery Ammunition	157,512
Chemical Warfare	Miller Mfg. Co., Richmond	Packing Boxes	2,975
Qtmtr. Corps	Mason & Hanger Co., New York, N. Y.	For the Construction of a Bag-loading plant near Pulaski	9,376,390
WEST VIRGINIA			
Qtmtr. Corps	D. E. McNicol Pottery Co., Clarksburg	Chinaware, 818,736	124,167
" " "	Blue Jay Mfg. Co., Huntington	Denim Working Trousers, 100,000	88,706
" " "	H. L. Hoechstetter Co., Plant C-Carr China Co., Grafton	Chinaware, 348,000 pieces	55,557
Supplies & Accts.	Carnegie-Illinois Steel Corp., South Charleston	Building, Machine Tools & Other Equipment Expansion	45,000,000
	The International Nickel Co., Huntington	Nickel-Copper Alloy	99,700

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World's Largest Fluorescent Lamp Works at Jackson, Miss.

(Continued from page 21)

through to that of common laborers.

"In the toolmakers and higher types of mechanical male labor, we first experienced a shortage in this, especially the experienced class; however, we have found mechanics experienced in lathe work, and these men have been very adaptable to training for operating precision millers, grinders, etc., and are as readily adaptable in this class of work as any we have found in any part of the country where we have operated.

"Our operation of glass furnaces involves miscellaneous types of equipment such as automatic converters, stocker and controls, glass drawing, glass cutting, and forming machines, and the male labor has been found to be very adaptable, efficient and easily trained in the operation of this equipment.

"We utilize in the manufacture of fluorescent lamps, different types of lamp making equipment, and here again, the male labor has been found very adaptable, efficient and easily trained. There has been found an ample supply of male labor for all of this type of work.

"In the different operations in the manufacture of the fluorescent lamp, we require the higher type of female labor (young women having a High School education or higher). This type of work requires a particularly high degree of skill and dexterity in connection with hand-work, and young women available have been found to be very adequate and adaptable.

"We have not only had fine response from the number of young women available but those that we have already employed and are now working, have been found just as adaptable to this type of work as any we have, in our experience, worked with in the northern states."

The extent of G. E.'s belief in the ability of Mississippi workers to turn out fine craftsmanship is indicated by the fact that the company plans to add another shift as soon as the personnel can be schooled, and will have approximately 700 people employed by July 1.

Introduced in 1938, the fluorescent lamp has gone swiftly into mass production. The line has also been enlarged in both sizes and colors. Sizes now range from 100-watt to 6-watt.

In the new fluorescent lamp was found an answer to the need for an extended source of cool light, a highly efficient means of producing a close approach to natural daylight, a source capable of emitting a wealth of rich colored light for display and decorative lighting effect.

Industry and commerce picked up the new lamp swiftly. Lighting men saw it not displacing the incandescent lamp, but

filling in the gaps where a great abundance of cool light was needed. Today the demand for the Mazda F Lamp is spreading into a variety of fields.

Many persons saw the new lights for the first time at the recent New York and San Francisco expositions. Packard Motor Car Company of Detroit last December placed with General Electric the largest order received to date for the G. E. 100-watt 60-inch Mazda F Lamp. All told, 11,640 of the lamps were ordered.

Visitors to General Electric at Jackson will see not only a new, ideally lighted factory but a thriving new business and an example of the lighting engineer's step toward better light for better eyesight.

It is expected that the success which has already met the expansion of G. E. into the South will cause other electrical manufacturing enterprises to give this area serious consideration when future enlargements are contemplated.

Thus Jackson, which claims for itself the title of the "Cross Roads of the South" because of its location and comprehensive transportation facilities and accommodations, is soon to become a center from which the latest development in illumination will be distributed, not only over the South, but over all the nation and throughout the world.

Progress of Research in the Bituminous Coal Industry

(Continued from page 28)

mon problem—that being to prepare coal and produce equipment which would meet the requirements of the public.

Commencing early in November last, another three-year program was instituted, and continued study will be made of some of the problems which were not completed, and many new ones will be taken up, including some which are urgently needed due to the present great increase in manufacturing. Those proposed by a technical committee included the firing, closer control and better design of equipment for industrial ceramic and metallurgical operations, the results to give to producers of such material lower operating costs by increased production, at the same time reducing seconds, culs or scrap; continued work in the direction of automatic comfort heating covering smokeless heating and cooking stoves, domestic stokers and small coal gas units; a new approach to gas producing from coal with more complete gasification to induce lower costs in the direction of firing in industrial use where the direct firing of bituminous coal is not always feasible, this to include automatic gas-electric generating units for isolated use.

Further investigation was proposed also of the internal combustion engine burning coal dust such as is now used in certain European countries, with the

possibility of using a water piston to dissipate the ash in continuous duty. Still other proposals included: a detached study of the behavior of ash in its burned state and some more convenient method of disposing of ash as well as finding uses for it in the commerce of the country; continuation of the work in the field of dustproofing coals, on which two years has just been completed with oils and other petroleum products; further studies and work with the railroads toward increased efficiency in locomotive firing for main line and switching use.

It is well known today that the simple coal fired steam locomotive with its few moving parts is more dependable and carries lower maintenance, and that therefore only a small increase in convenience and economy would induce the railroads to stay on coal, especially since coal freight revenue is to many railroads the very backbone of their financial stability. As a consequence it was deemed advisable that some work should be done on the smoke index of coals. It is known, for example, that correct firing, while at the same time reducing or entirely eliminating smoke, can increase firing efficiency as much as 10 points, and therefore since this may be from 50% to 60% it might amount to as much as 10 over 50 or a 20% saving.

Coal is not an easy subject to remodel and adapt to prescribed requirements, because it is a raw product pre-formed in the ground and its use can only be increased by careful mining, cleaning and preparation.

When business is tranquil, industry is taken for granted. When emergencies occur, the country looks to industry for great things and usually expects them to happen overnight. Now, under pressure of increased business and National Defense, all of these advances are being speeded up to meet and, in fact, anticipate, the great increases which are being and shall be required. In this effort the coal industry has been greatly assisted by mechanization, transportation, control and development through research. There has been a decrease in the amount of coal required to produce a 1,000 cu.ft. of gas, to produce a 1,000 lbs. of steam, to heat homes during the cold months and to do many other things that previously required more coal than seemed to be necessary. We expect to further reduce the quantity of coal required to do a job and to develop new uses and new economies for the benefit of mankind.

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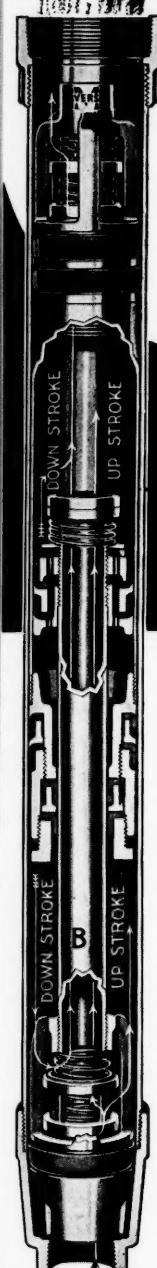
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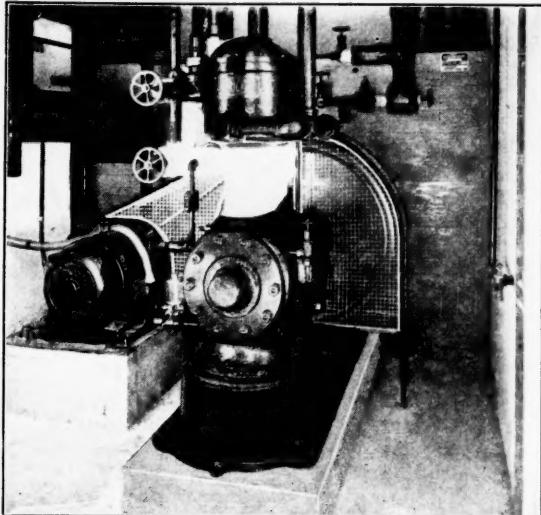
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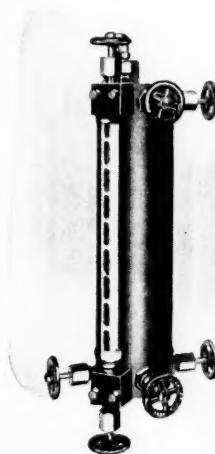
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(Continued from page 18)

intercommunicating service including the instruments required to make it work. Since we assume the obligation to keep the service in operation we must have service men available at the beck and call of the subscriber. It would obviously be uneconomical for us to cultivate widely scattered markets or markets where we do not achieve a reasonably high degree of concentration and of instrument population.

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by
JOSEPH W. FRAZER
President & General Manager
Willys-Overland Motors, Inc.

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(Continued on page 54)

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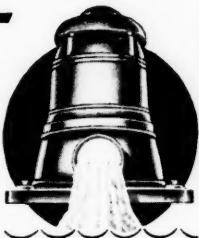
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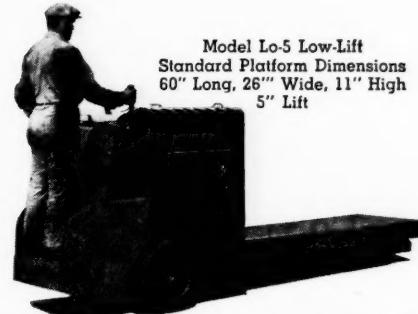
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**Corrugated Type—Fabricated
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DIV. of the Yale & Towne Mfg. Co.

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WHEN YOU BUY TRUCKS ... BUY AUTOMATIC

An Inspiration on Wheels

(Continued from page 25)

"The train will give Florida farmers, cattlemen and others interested in agriculture the opportunity to see exhibits of fine live stock, improved forage crops and forest products and examples of forestry management. It will also enable them to confer with leading workers in these phases of agriculture. It will represent close, cooperative efforts of the groups and agencies that are sponsoring it."

More care of the timber crop and more acres devoted to domestic grasses will reduce fire hazards and improve the economic conditions of the State of Florida, as well as make that great tourist state more attractive.

All these factors appealed to the management of the Atlantic Coast Line Railroad in making its decision to cooperate with the University of Florida College of Agriculture and the Florida Department of Agriculture in this undertaking.

When this project was being advertised and operated, many referred to it as a "fair on wheels." One competent authority more nearly described it as an "inspiration on wheels."

Cottonseed Hull Plastics

(Continued from page 22)

seed hulls are less expensive than wood-flour, (3) cottonseed hulls lend certain unique properties to the plastic material. They supply a degree of elasticity under stress not shared by other materials, which suggests uses for cottonseed-hull compound under conditions where other plastic materials would fail.

National Plastics, Inc., of Knoxville, Tenn., are custom molders who press molding compounds into any conceivable shape as prescribed by the customer. Having had a wide practical experience with most commercial plastic material for many years, they were in a position to give cottonseed-hull plastics the proper place in commercial application and al-

ready are manufacturing accessories for textile mills such as sheaves for looms. These parts have been made of wood heretofore and, due to mechanical wear, had to be replaced frequently. They are being replaced at the present time by cottonseed-hull plastics in ever increasing numbers. There are more than 1500 textile mills in the Southeast which will be modernized eventually by an increasing application of plastic materials, and cottonseed-hull plastics have already had a very favorable reception.

The indications are that the South is at the outset of an economical and industrial expansion such as it never experienced before. New industrial developments have moved to the South in recent years, and this trend doubtless will proceed at an increased rate in the near future. This will necessitate a considerable investment in manufacturing equipment, which, in turn, is consuming an increasing share of plastic materials. It is only logical to expect that cottonseed-hull plastics, which are proving their worth in industrial machinery at this time, will have a greatly extended scope of application. We may be justified in anticipating the utilization of a Southern agricultural product in a new Southern industry by Southern research efforts.

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Worm gears any practical size. Backs curved or straight. Fast Delivery—Fair Prices.

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QUALITY
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Activator Process Sales Company Appointments

Having completed formation of its sales organization throughout California, the Activator Process Sales Company, Alhambra, Cal., announces the appointment of E. W. Murray, chemical engineer, for the St. Louis, Missouri, territory, and L. R. Land, boiler contractor, for the state of Oklahoma, Western Arkansas, and the Panhandle of Texas. Negotiations are in progress for representation of the company in other Eastern areas, covering the Activator Process method of scale prevention in boilers, heaters, water jackets, cooling towers, condenser coils, etc.

Shipley Sells Interests In Wood Preserving Corporation to Koppers Company

Grant B. Shipley, Chairman and Director of The Wood Preserving Corporation, has sold his interests in the company to Koppers Company, Pittsburgh, Pa., and The Wood Preserving Corporation, as of January 1, 1941, will be operated as a division of The Koppers Company.

Following the wood preserving business for 35 years, Mr. Shipley resigned as Chief Engineer of the Mining Department of Allis-Chalmers Company in 1910 and started his own engineering business in Pittsburgh. He organized and was president and director of the Pittsburgh Wood Preserving Co., The Ohio Wood Preserving Co., The Maryland Wood Preserving Co., and other similar industries, and is said to have been instrumental in developing more wood preserving plants in the United States than any other person, showing a wide interest in improving plant equipment and processes. Among his

developments was the use of high pressure air which reduces time treatment and power requirements. He has also been greatly interested in the American Wood Preservers Association and the American Railway Engineering Association committee affairs as well as other engineering society work. He was trained as a mining plant and mining machinery designer and has been connected with several mining enterprises.

Harrison Becomes President of New York Life Insurance Company

George L. Harrison, formerly president of the Federal Reserve Bank of New York, has become President and chief executive officer of the New York Life Insurance Company, effective January 1, 1941. Mr. Harrison was elected to this position on May 8 by the Board of Directors and was expected to assume office last July 1, but because of world financial conditions the Directors of the Federal Reserve Bank of New York, of which Mr. Harrison was president, requested that his election to the presidency of the New York Life Insurance Company be deferred for the remainder of 1940. Alfred L. Aiken, Chairman of the Board of the New York Life Insurance Company, continues in that position.

Tonne Joins Hough Shade Corporation

Chris F. Tonne, former Sales Manager of Pyramid Metals Company and John Lees Division of Serrick Corporation, has joined the Hough Shade Corporation of Janesville, Wis., as Sales Promotion Manager. The Hough Shade Corporation is among the largest manufacturers of industrial wood fabric shades, and Venetian blinds.

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250 BATHS with SHOWERS

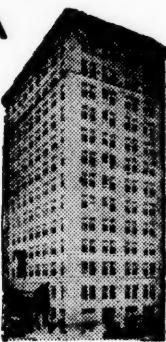
RADIO IN EVERY ROOM
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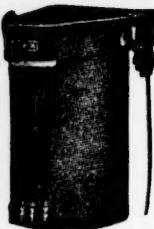
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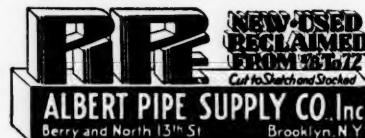
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